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ADHD Symptoms and Alcohol Expectancies: The Moderating Roles of Parenting and School Climate

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ADHD SYMPTOMS AND ALCOHOL EXPECTANCIES: THE MODERATING ROLES
OF PARENTING AND SCHOOL CLIMATE

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ABSTRACT

Attention-deficit/hyperactivity disorder (ADHD) is a common childhood behavioral disorder that often extends into adulthood and is associated with negative health outcomes, including alcohol use. Alcohol expectancies are a widely studied predictor of alcohol use, and have been shown to predict alcohol use among individuals with ADHD. Positive alcohol expectancies appear to be particularly related to alcohol use as well as ADHD. However, a number of broad social factors including parent, peer, and school/environmental influence likely impact the relation between ADHD and alcohol expectancies. The current study examined positive parenting, parental monitoring, parental involvement, and school climate as moderators of the relation between ADHD and alcohol expectancies. Data were collected from 379 children ($M_{age} = 12.5$ years) and their parents. Parents completed measures of demographics, child ADHD symptoms, parenting, and school climate. Children completed measures of parenting, school climate, and alcohol expectancies. Findings indicated that, for parent report only, positive parenting moderated the relation between ADHD symptoms and positive alcohol expectancies, but not in the hypothesized direction. Similarly, child and parent report of school climate also moderated the relation between ADHD symptoms and positive alcohol expectancies, but this effect was also not in the predicted direction. A possible explanation for findings is the role of peer influence, another broad social factor that is associated with ADHD and alcohol expectancies/use. Future research should explicitly

examine the role of peer influence in the relation between ADHD symptoms and positive alcohol expectancies. Although study hypotheses were not supported, continued research in this area remains important for identifying key areas of prevention and intervention.

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CHAPTER 1

INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is a common childhood behavioral disorder that often extends into adulthood (Barbarese, Colligan, Weaver, Voigt, Killian, & Katusic, 2013). ADHD is associated with a number of health-related outcomes, including alcohol use (Molina, Pehlman, Gnagy, Thompson, & Marshall, 2007; Sibley et al., 2014). Specifically, research has shown that childhood ADHD is associated with increased risk of alcohol use disorder by adulthood (Lee, Humphreys, Flory, Liu, & Glass, 2011). Alcohol expectancies develop early in life and are shown to be predictive of problematic alcohol use (e.g., Goldman, 1994). Particularly, positive alcohol expectancies have been linked to heavy alcohol use and related problems (e.g., Carey, 1995; Johnston, O'Malley, Bahman, & Schulenberg, 2008a). Because ADHD symptoms are linked to positive alcohol expectancies (e.g., Dattilo, Murphy, Van Eck, & Flory, 2013), it is important to consider additional factors that may impact this relation. Broadly, two such factors are parenting and school climate. The current study extends prior research on ADHD symptoms and positive alcohol expectancies by examining key elements of parenting and school climate as potential moderators of this relation.

ADHD and Related Impairment

ADHD is a childhood behavioral disorder marked by symptoms of overactivity, inattention, and impulsivity. Researchers estimate the worldwide prevalence of ADHD

to be 5.29% (Polanczyk, de Lima, Horta, Biederman, & Rhode, 2007), and the rate among children in the United States to be 7.8% (Centers for Disease Control and Prevention [CDC], 2005). However, among children receiving treatment for psychiatric disorders in clinical settings, diagnoses of ADHD often comprise more than half of cases (Barkley, 1998). Not only is ADHD a common diagnostic presentation among children in clinical settings, but symptoms associated with the disorder can cause significant impairment in academic and social achievement. Children with ADHD are more likely to repeat a grade and score lower on assessments of reading and math achievement compared to a control group (Biederman et al., 1996). Similarly, compared to a control group, children with ADHD have higher rates of school expulsion (LeFever, Villers, Morrow, & Vaught, 2002). Both repeating a grade and expulsion are likely to restrict a child's social participation. Additionally, children with ADHD have more difficulty being accepted by peers, maintaining friendships, and developing social skills (Hoza et al., 2005; Wheeler & Carson, 1994). Such pervasive academic and social deficits indicate that the day-to-day impairment of ADHD extends into many domains of a child's life.

Not only does ADHD affect children, but a growing body of literature suggests that it impacts adults as well. ADHD is recognized as a chronic health condition that persists into adulthood (Barbaresi et al., 2013). Researchers have estimated the rate of ADHD in adulthood to be between 2 and 5 percent for the general population (Barkley, 1998). While the documented rate of ADHD among adults is lower than the rate among children, research also suggests that the rate of ADHD among adults is rising, particularly among young adults (Monejano, Sasané, Hodgkins, Russo, & Huse, 2011). Given the academic difficulties experienced by children with ADHD, it is not surprising that

ADHD in adulthood is often accompanied by continued difficulties related to post-secondary education and occupational attainment. Among participants enrolled in post-high school education, young adults with ADHD completed fewer years of college than a comparison group (Barkley, Murphy, & Fischer, 2008). Barkley and colleagues (2008) also found that young adults with a history of childhood ADHD obtained lower-ranking occupations than a comparison group. Additional research finds that young adults with ADHD are less likely than comparison peers to be employed or enrolled in post-secondary education (Kuriyan et al., 2013).

ADHD and Alcohol Use

In addition to symptom-related impairment in day-to-day life, ADHD is associated with a number of negative health-related outcomes, including alcohol use. At the symptom level, research has documented a relation between personality features associated with ADHD, such as impulsivity, restlessness, and distractibility, and alcohol-related problems (Caspi, Moffitt, Newman, & Silva, 1996). Similarly, heightened reward sensitivity and behavioral inhibition, deficits of executive functioning, have been conceptualized as core features of ADHD (Barkley, 1997; Sonuga-Barke, 2005). A number of studies have shown that reward sensitivity is a significant predictor of reactivity to alcohol cues (e.g., Glautier, Bankart, & Williams, 2000, Kambouropoulos & Staiger, 2004, Zisseron & Palai, 2007) and a positive relation between reward sensitivity and alcohol use has been well-established in the literature (e.g., Bijttebier, Beck, Claes, & Vandereycken, 2009). Adults with ADHD have also been shown to exhibit heightened impairments in behavioral inhibition after consuming alcohol (Weafer, Fillmore, & Milich, 2011). Thus, core features of ADHD are associated with problematic alcohol use.

Given that ADHD is typically diagnosed in childhood, it is important to understand how symptoms of the disorder are related to adolescent alcohol use. Diagnosis of childhood ADHD has been found to be predictive of alcohol use in adolescents (Molina et al., 2013) and adolescents with ADHD, compared to typically developing peers, are more likely to begin drinking at an earlier age (Barkley, Rischer, Edelbrock, & Smallish, 1990). For adolescents in general, early onset of alcohol use is a significant predictor of alcohol and other-drug related problems later in life (Clayton, 1992), and about 30 percent of adolescents receiving treatment for alcohol and other drug abuse meet criteria for ADHD (Molina, Bukstein, & Lynam, 2002). Similarly, about a quarter of adults receiving treatment for alcohol and other drug abuse have a comorbid ADHD diagnosis (Wilens, 1998). Wilens (1998) also found that treatment for alcohol and other drug use disorders is often less successful for individuals with ADHD than those without the disorder. Furthermore, research indicates that the transition from alcohol and other drug *use* to *abuse* happens more quickly for those with ADHD than those without, and that alcohol and other drug use disorders have an earlier onset among individuals with ADHD (i.e., age 19 years) than individuals without ADHD (i.e., age 22 years; Wilens, 1998). Thus, it appears that individuals with ADHD are vulnerable to heightened consequences from adolescent alcohol use, and that such consequences may become increasingly severe as individuals transition from adolescence to adulthood. Because of the significant negative outcomes associated with problematic alcohol use, it is important to identify factors that can shape one's early experiences with alcohol use.

Alcohol Expectancies and Use

Alcohol expectancies are widely studied and well-documented predictors of alcohol use (e.g., Goldman, Del Boca, & Darkes, 1999; Simons Morton, Haynie, Crump, Saylor, Eitel, & Yu, 1999, Smith & Goldman, 1994; Wardell, Read, Colder, & Merrill, 2012), and are defined as the consequences – either positive or negative – that an individual expects to experience when consuming alcohol (Chen, Storr, Liu, Chen, Chen, & Lin, 2011). Positive alcohol expectancies include beliefs that drinking will enhance social experiences or emotions, and have been found to predict alcohol use (Fromme & D’Amico, 2000; Maggs, Staff, Patrick, Wray-Lake, & Schulenberg, 2015). In contrast, negative alcohol expectancies include beliefs that drinking will result in negative outcomes and produce sedative effects; such expectancies have been found to protect against drinking among adolescents (Bekman et al., 2011, Fromme & D’Amico, 2000, Maggs et al., 2015). The bulk of the research focusing on alcohol expectancies has focused on positive alcohol expectancies. Research has found that positive alcohol outcome expectancies are associated with both increased alcohol consumption and risky drinking (Armeli et al., 2000). Similarly, heavy and problematic drinkers are more likely to report positive alcohol expectancies (Chen et al., 2011), and positive expectancies have been found to account for variance in drinking behavior (Jester, Wong, Cranford, Buu, Fitzgerald, & Zucker, 2015).

Research finds that alcohol expectancies develop before the onset of drinking (Dunn & Goldman, 2000), emerging as early as preschool (Noll, Zucker, & Greenberg, 1990). Children as young as three years old hold schemas about alcohol, and assessment of these schemas has shown that they predict early initiation of drinking (Zucker,

Kincaid, Fitzgerald, & Bingham, 1995). As such, alcohol expectancies are important to study in young children.

Although young children typically have negative alcohol expectancies (Johnson & Johnson, 1995), positive alcohol expectancies increase with age (Miller, Smith, & Goldman, 1990). Specifically, findings suggest that positive alcohol expectancies increase across early adolescence (Cameron, Strizke, & Durkin, 2003). Overall, the developmental trajectory of alcohol expectancies indicates that positive alcohol expectancies increase and negative alcohol expectancies decrease during adolescence (Dunn & Goldman, 1998, 2000). Although alcohol expectancies are often studied among children who are alcohol naïve, a large body of research has continued to examine alcohol expectancies throughout adolescence and adulthood following the onset of drinking (e.g., Lee, Corte, Stein, Feng, & Liao, 2020; Nicolai et al., 2012; Pabst, Kraus, Piontek, Muller, & Demmel, 2014; Wilson, Wray, & Turrisi). As such, it is important to continue to study alcohol expectancies after the initiation of alcohol use.

While alcohol expectancies have been studied in adult and older adult samples, research finds that positive alcohol expectancies are a stronger predictor of drinking among individuals age 35 years and younger (Bot, Engels, & Knibbe, 2005, Leigh & Stacy, 2004, Zamboanga, Horton, Leitkowski, & Wang, 2006). Adolescence appears to be a unique period with respect to alcohol expectancies. Indeed, alcohol expectancies predict the onset and escalation of alcohol use among adolescents (Goldman, 1994). Alcohol expectancies have been found to longitudinally predict the onset of drinking in middle school youth (Simons-Morton, 2004). And, adolescents who expected that alcohol use would produce more pleasurable experiences were more likely to use alcohol than

those who believed alcohol would have negative effects (Brown, Christiansen, & Goldman, 1987; Chartier, Hesselbrock, & Hesselbrock, 2010). However, the relation between alcohol expectancies and drinking has been shown to differ by sex, with males endorsing more positive alcohol expectancies than females (Schulte, Ramo, & Brown, 2009). Although adult males consume more alcohol and have more alcohol-related problems than females (Substance Abuse and Mental Health Services Administration, 2008), rates of drinking among youth ages 12 to 18 do not differ by sex (CDC, 2006; Johnston, O'Malley, Bachman, & Schulenberg, 2008b).

Alcohol Expectancies and ADHD

Emerging research has examined the association between ADHD and alcohol expectancies. Dattilo, Murphy, Van Eck, and Flory (2013) found that ADHD symptoms were related to higher levels of positive alcohol expectancies, suggesting that individuals with ADHD are more likely to anticipate positive outcomes when drinking alcohol and are also at increased risk for alcohol-related problems. Qualitative reports from adults with ADHD further support the relation between ADHD and positive alcohol expectancies. Nehlin, Nyberg, & Öster (2015) found that adults with ADHD self-reported positive experiences (i.e., reduced internal restlessness, improved social interaction) with alcohol consumption. Recent empirical research by Elmore, Nikolas, and Canu (2018) showed that positive alcohol expectancies are a more important contributor to negative drinking-related outcomes than negative alcohol expectancies, and that such positive expectancies may serve to increase the risk of those experiencing ADHD behaviors and subsequent symptom-related impairment. It may also be the case that features of ADHD, such as deficits of executive functioning and increased reward sensitivity, may interact

with alcohol expectancies to influence alcohol-related outcomes. For example, the expected immediate, positively construed effects of alcohol consumption (e.g., having fun, being more social) might be judged by young people with ADHD to outweigh relatively delayed negative consequences (e.g., feeling sick, forgetful). Similarly, poor inhibitory control may strengthen the association between expectancies and use among individuals with ADHD.

Research by Squeglia, Brammer, Ray, and Lee (2016) suggests that hyperactivity-impulsivity may contribute to the development of favorable expectations about the effects of alcohol consumption. Squeglia and colleagues found that children with more hyperactive symptoms endorsed more wild and crazy alcohol expectancies (e.g., feeling crazy or goofy when drinking alcohol). Squeglia et al. did not find a significant relation between inattention and hyperactivity symptoms and negative (e.g., feeling sleepy, slow, mad, dangerous when drinking) or positive (e.g., feeling less nervous, more active, more content when drinking) expectancies.

In contrast, conflicting associations between negative alcohol expectancies, alcohol use, and alcohol-related problems have been demonstrated in other work. Given that only a small body of research exists on the relation between ADHD and alcohol expectancies, examination of ADHD and negative alcohol expectancies has been limited. One study of alcohol-naïve children found that increased ADHD behaviors were associated with increased expectations of negative arousal and sedation/impairment as a result of alcohol use (Lee & Humphreys, 2014).

Pedersen, Harty, Pelham, Gnagy, and Molina (2014) found that adolescents with a history of ADHD, compared to those without, had lower mean expectations that alcohol

would have either positive (e.g., feeling more social, courageous when drinking) or negative (e.g., experiencing mental and physical impairment when drinking) effects on them. However, Pedersen and colleagues' sample was part of a longitudinal study, and follow-up research showed that negative alcohol expectancies were only a protective factor for individuals without an ADHD history. Although results of research on ADHD and alcohol expectancies yield differences in findings, it appears that alcohol expectancies likely have utility as a potential screening tool for problematic alcohol use among individuals with ADHD. Given that there is more consistent evidence to support the relation between positive alcohol expectancies and ADHD and that positive alcohol expectancies are more strongly predictive of alcohol use than negative expectancies, the current study focuses only on positive alcohol expectancies.

Alcohol expectancies may operate differently in ADHD than in the general population. A dual process model of alcohol use outlined by Stacy and Wiers (2010) highlights the roles of both a rational, explicit process and an automatic, implicit process in alcohol consumption. The model suggests that individuals who have high levels of executive functioning rely more on the explicit, controlled process and individuals low in executive functioning, such as those with ADHD, are more influenced by the automatic, implicit process. Thush, Wiers, Ames, Grenard, Sussman, and Stacy (2008) found that explicit alcohol expectancies were less related to alcohol use for adolescents with low working memory capacity (i.e., common in ADHD) compared to high working memory capacity. And, implicit cognitions were found to be more related to alcohol for individuals with lower working memory (Thush et al., 2008). Additionally, individuals high in positive and negative urgency (i.e., a type of impulsivity) have been found to act

more in line with their implicit alcohol cognitions than individuals with lower levels of such traits (Burton, Pedersen, & McCarthy, 2012).

Previous research has shown that explicit expectancies and alcohol use reciprocally influence one another (Smith, Goldman, Greenbaum, & Christiansen, 1995). However, given that the association between explicit expectancies and use may be reduced for individuals with lower executive control, expectancy development may be reduced in ADHD and, as a result, may mean that these individuals have lower mean levels of explicit alcohol expectancies than typically-developing individuals. As such, additional factors that may influence explicit cognitions are important to examine in order to fully understand the relation between ADHD symptoms and alcohol expectancies.

Key Factors that Likely Impact the Association between ADHD Symptoms and Positive Alcohol Expectancies/Alcohol Use: A Broad Social Conceptual Model

Although there is a documented relation between ADHD and positive alcohol expectancies/alcohol use, it is important to consider additional factors that may affect this relation, as these factors may prove to be important points of prevention/intervention in reducing alcohol use among this at-risk population. A conceptual model is presented in Figure 1.1 that outlines three identified broad social factors of influence (i.e., parental, peer, and school/environmental) that likely play a role in the relation between ADHD and alcohol expectancies/use. While the present study focuses only on the moderating role of two relatively narrower constructs within the broader conceptual model (i.e., parenting and school climate) in influencing the relation between ADHD and alcohol expectancies, it is important to first understand the broader factors and the theories supporting them.

Social cognitive learning theory (Bandura & National Institute of Mental Health, 1986) offers one explanation of the relation between these broad social factors and alcohol expectancies/use. According to this theory, youth acquire their alcohol-related beliefs through their social networks, especially peers and parents (Petraitis, Flay, & Miller, 1995). As an individual transitions from late childhood and early adolescence to middle and late adolescence, the impact of parents' drinking habits may wane and the role of peers' drinking habits and beliefs may be more important in influencing one's alcohol expectancies and, in turn, alcohol use. Indeed, research among late adolescents has found that peer influence is more strongly associated with monthly alcohol use than parental influence (Schwinn & Schinke, 2014).

Developmental theory offers additional support for the respective roles of parenting and peer influence in the development of alcohol expectancies and use. Adolescence is characterized by an emerging sense of identity and evolving conceptualization of role relationships. At each developmental stage, youth are confronted with a host of new roles and freedoms (Schulenberg, O'Malley, Bachman, Wadsworth, & Johnston, 1996). As youth begin to exert independence from the family, peer socialization influences become more and more influential (Wood, Vinson, & Sher, 2001). By the time children transition into late childhood, they begin to view alcohol consumption in light of positive views expressed by peers (Johnson & Johnson, 1996; Lang & Stritzke, 1993; Webb, Baer, & McKelvey, 1995).

However, parental influence continues to be important in children's values as they move through adolescence (Galotti & Mark, 1994), which may influence alcohol expectancies and use among those with high ADHD symptoms. While there is a shift in

emotional attachment during early adolescence, there is evidence to support the continuing influence of parents on development through adolescence and into early adulthood (Sreteinberg, 2001; Turrisi & Ray, 2010). Biological influence may also play a role in the impact of parents on children's alcohol expectancies and use. Biological predispositions towards alcohol use may be activated in the presence of environmental triggers, and such gene by environment interactions have been found to be related to alcohol use among youth (Leonard & Eiden, 2007). Indeed, there is theoretical support linking the importance of parental and environmental influence on alcohol use. Specifically, social bonding theory argues that strong ties to families and schools discourage problem behavior by raising the costs that are associated with it (Agnew, 1993).

Importantly, peer influence and school influence may dually influence alcohol use and expectancies among youth with ADHD. Exposure to peer social networks in school has been shown to influence underlying increase in alcohol use (Fergusson, Horwood, & Lynskey, 1995; Jacob & Leonard, 1994). Peer alcohol use also has a well-documented association with adolescent alcohol use (e.g., Hawkins, Catalano, & Miller, 1992) and research finds that associating with close friends who use alcohol or drugs predicted heavier binge drinking at age 16 years, even after accounting for genetic risk and environmental protective factors such as parental knowledge (Li et al., 2017). And, children with ADHD are more likely than children without ADHD to become involved with deviant peers and, as a result, use substances including alcohol (Marshall et al., 2003).

Indeed, research has found that peer use is more strongly associated with alcohol use for individuals with ADHD compared to individuals without ADHD (Marshall, Molina, & Pelham, 2003). However, gender differences related to the effect of peer socialization on alcohol use have been documented. For example, alcohol use is positively associated with problem-behaving friends for girls but not boys (Simons-Morton et al., 1999). Not only are more boys than girls diagnosed with ADHD, but males are also more likely than females to develop problematic alcohol use (Bennett, McCrady, Johnson, & Pandina, 1999).

Interactional theory (Thornberry, 1987) also offers a valuable perspective that ties together all three broad social factors that may influence the relation between ADHD and alcohol expectancies. This theory posits that both prosocial influences (e.g., attachment to parents, commitment to school) and antisocial influences (e.g., association with delinquent peers and delinquent values) are reciprocally related and mutually influence each other over time. For example, a young person with weak prosocial bonds (e.g., poor attachment to parents, low school connectedness) and strong antisocial influences (e.g., association with deviant peers) would be at greater risk for substance use. Conversely, if a young person has strong prosocial bonds and weak antisocial influences, he would be at a decreased risk for substance use. Thus, parental attachment and commitment to school may serve as protective factors for youth according to interactional theory.

Moderators Examined in the Current Study

The current study examines two narrower constructs within the broader conceptual model as potential moderators of the association between ADHD symptoms

and positive alcohol expectancies. These constructs include parenting practices and school climate.

Parenting. There is a broad relation between ADHD and parenting, and both positive (e.g., marked by high levels of support, warmth) and negative (e.g., marked by high levels of parent child-conflict, harsh discipline) parenting strategies may impact this relation. The current study examined several key parenting practices likely moderate the relation between ADHD symptoms and alcohol expectancies. These include positive parenting, parental monitoring, and parental involvement.

Positive parenting strategies appear to play a role in decreased adolescent substance use. Parenting style is an important component of parenting that plays a role in adolescent behavior, and is implicated in positive parenting. An authoritative parenting style, characterized by high responsiveness, high demands, and consistent and balanced discipline, was found to be associated with less involvement in adolescent alcohol use (Bahr & Hoffmann, 2010). Longitudinal studies find a negative association between consistent discipline and delinquency and substance use in adolescence (Stice, Barrera, & Chassin, 1993; Stice & Barrera, 1995). And, parents of children with ADHD are more likely to use negative or ineffective discipline strategies compared to parents of children who do not have ADHD (Hinshaw et al., 2000). As such, evidence suggests that higher levels of positive parenting will be a protective factor in the relation between ADHD and alcohol expectancies. Positive parenting is examined as the first moderator of the relation between ADHD symptoms and positive alcohol expectancies in the current study.

Parental monitoring, the second parenting moderator examined in the relation between ADHD symptoms and positive alcohol expectancies, is another component of

parenting and refers to parenting behaviors used to learn about an adolescent's friends, whereabouts, and activities (Barnes, Hoffman, Welte, Ferrell, & Dintcheff, 2006). When parents are aware of an adolescent's activities, whereabouts, and companions, adolescents are less likely to engage in misbehavior (e.g., Fletcher, Darling, & Steinberg, 1995; Lahey, Van Hulle, D'Onofrio, Rodgers, & Waldman, 2008; Laird, Pettit, Bates, & Dodge, 2003). Longitudinal research has found that parental monitoring has a preventive effect on adolescents' alcohol use (Duncan, Duncan, Biglan, & Ary, 1998). A number of studies have shown that increased parental monitoring is associated with lower levels of substance use among adolescents (e.g., Dishion & McMahon, 1998, Nash, McQueen, & Bray, 2005). For adolescents with and without ADHD, parental monitoring predicted lower levels of alcohol use, and this association was significantly stronger for adolescents with ADHD (Walther et al., 2012). Parental monitoring was also found to moderate the association between childhood ADHD and alcohol use frequency such that lower parental knowledge was associated with increased drinking (Molina, Pelham, Cheong, Marshal, Gnagy, & Curran, 2012). However, parents' ability to accurately monitor an adolescent's behavior may be impacted by the level of communication with their adolescent. Adolescents may withhold or otherwise be unwilling to share information with parents, so consideration of adolescent's report of parental knowledge is also important in understanding the relation between monitoring and substance use. Research has found that, as adolescent-reported parental awareness increases, delinquency decreases (Lambourn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg, Lamborn, Darling, Mounts & Dornbush, 1994). Thus, actions taken by parents of adolescents with a history of ADHD to increase parental awareness likely serve as a protective factor against

behavioral concerns known to be problematic in this population. While parental monitoring is important, it may not be as useful if information gained by parents is inaccurate.

A third parenting factor is parental involvement. While parents may not always have a complete picture of their adolescent's whereabouts, adolescents' sharing of information is a proximal source of parents' knowledge (Stattin & Kerr, 2000). Adolescents whose parents are more involved in their day-to-day lives are less likely to consume alcohol. For example, communication between parents and their offspring reduces adolescents' alcohol consumption (Guilamo-Ramos, Jaccard, Rurrisi, & Johansson, 2005; Horton & Gil, 2008). Elements of parental involvement including frequent and high quality communication combined with clear rules has been found to decrease adolescent alcohol use (Koning, Van den Eijnden, Verdurmen, Engels, & Vollebergh, 2012) as well as binge drinking and intentions to drink (Schwinn & Schinke, 2014). Parental involvement has been shown to be associated with delayed alcohol initiation and lower levels of later drinking (Ryan, Jorm, & Lubman, 2010). As such, parental involvement appears to be another protective factor for youth alcohol use and is examined as a moderator of the relation between ADHD symptoms and positive alcohol expectancies in the current study.

Taken together, it appears that positive parenting, parental monitoring, and parental involvement are each key facets of parenting that may serve as protective factors in the development and maintenance of adolescent alcohol use. Thus, positive parenting, parental monitoring, and parental involvement will each be examined as moderators of the relation between ADHD symptoms and alcohol expectancies in the present study.

School climate. School and environmental influence is an important piece of the broad conceptual model of the relation between ADHD symptoms and positive alcohol expectancies. School climate is a narrower construct within this factor, and describes the quality and character of school life. A significant portion of adolescents' time is spent at school, and the school context is crucial for youth with ADHD. An important piece of school context is school climate, a multidimensional construct that includes physical (e.g., safety, comfort, appearance, student-teacher ratio), social (e.g., equitable treatment of students, quality of student-teacher relationships), and academic (e.g., expectations for student achievement, quality of instruction) dimensions (Loukas, 2007).

Key factors of school climate including academic functioning and school bonding have been negatively associated with adolescent alcohol and drug use (Barkley, Fischer, Smallish, & Fletcher, 2006, Biederman et al., 2004). Academic performance, which is negatively impacted by ADHD (e.g., Biederman et al., 1996, LeFever et al., 2002), likely also plays a role in one's perception of school climate. Research with Hispanic adolescents documented a relation among ADHD with comorbid conduct disorder, early alcohol use, and poor school functioning (Lopez et al., 2008). Despite preliminary research suggesting a relation among ADHD, alcohol use, and school climate, additional studies in this area are extremely limited and focus more on academic outcomes than school climate itself.

School-wide attitudes likely play a role in school climate, and have been shown to impact substance use. Specifically, school-level disapproval of substance use was shown to be negatively associated with substance use in a national sample (Kumar, O'Malley, Johnston, Schulenberg, & Bachman, 2004). School connectedness is related to alcohol

use (Hemphill, Heerde, Scholes-Balog, Herrenkohl, Toumbourou, & Catalano, 2014). Indeed, school connectedness has been found to be the strongest protective factor for both boys and girls to decrease substance use (Resnick et al., 1997). As such, school climate appears to be a protective factor for substance use.

Given that school is a key part of adolescents' lives, it follows that school connectedness is an element of adolescents' prosocial bond. Thus, the current evidence points to school climate as a protective influence against negative behaviors such as alcohol use. Given the research findings, school climate is also examined as a moderator of the relation between ADHD symptoms and positive alcohol expectancies in the current study.

Current Study

Broadly, the respective influences of parents, peers, and school/environment appear to influence the relation between ADHD and positive alcohol expectancies. Although the relation between ADHD and alcohol expectancies is well-documented in the literature, there is less research on specific moderators of this relation. No research to date has explicitly examined the role of parenting in the relation between ADHD symptoms and positive alcohol expectancies, a known predictor of alcohol use. And, no existing research has examined the role of school climate in the relation between ADHD symptoms and positive alcohol expectancies. In the current study, three specific parenting constructs (i.e., positive parenting, poor parental monitoring, parental involvement) and school climate are examined as potential moderators of this relation. This research is important as it may help to identify factors that could be targets of alcohol use

prevention/intervention efforts for adolescents with symptoms of ADHD, an at-risk population.

Thus, four main research questions were assessed. First, the study examined whether positive parenting moderates the relation between ADHD symptoms and positive alcohol expectancies. It was hypothesized that, when positive parenting is high, there will be a negative relation between ADHD symptoms and positive alcohol expectancies. The second research question examined whether poor parental monitoring moderates the relation between ADHD symptoms and positive alcohol expectancies. Similar to the first hypothesis, it was predicted that, when poor parental monitoring is low, there would be a negative relation between ADHD symptoms and positive alcohol expectancies. The third parenting-related research question examined parental involvement as a moderator of the relation between ADHD symptoms and alcohol expectancies. It was expected that parental involvement would also be a unique protective factor, such that there would be a negative relation between ADHD and positive alcohol expectancies when there are high levels of parental involvement.

Finally, the study examined whether school climate moderates the relation between ADHD symptoms and positive alcohol expectancies. For this research question, it was hypothesized that there would be a negative relation between ADHD and positive alcohol expectancies when there are positive reports of school climate.

Cross-sectional data will be used for all analyses. Because adolescence is a period of rapid social and biological change (Forbes & Dahl, 2010; Masten, Faden, Zucker, & Spear, 2008; Spear, 2000), and when many individuals initiate alcohol use (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2017), long measurement intervals or

restricted age ranges in longitudinal analysis may miss meaningful developmental shifts in alcohol-related beliefs held by youth (Sher, Wood, Wood, & Raskin, 1996).

Additionally, moderators for each hypothesis will be examined with child and parent data separately. Research finds that parents may be more prone to social desirability bias compared to children (de Bourdeaudhuij & Van Oost, 2000). And, extensive research finds that perceptions about parental practices may vary between children and parents (Haines, Neumark-Sztainer, Hannan, & Robinson-O'Brien, 2008; Fulkerson, Neumark-Sztainer, & Story, 2006; Tein, Roosa, & Michaels, 1994). Both parents and children may provide unique perspectives on their perceptions of their environment, relationships, and schools. As such, child report will be used as the primary analysis and parent report will be used as secondary analysis for all research questions.

ADHD symptoms, rather than a dichotomous diagnosis, were examined in the current study. ADHD symptoms are frequently used over diagnosis in community samples (e.g., Green, DeYoung, Wogan, Wolf, Lane & Adler, 2019; Holbrook et al., 2016) and research suggests that even individuals with subthreshold symptoms of ADHD often have impairments associated with their symptoms (Hong et al., 2014). Further, research indicates that the salience of ADHD symptoms tends to vary during development. Specifically, both total ADHD symptoms and hyperactive/impulsive symptoms tend to decrease as children age, whereas inattention symptoms tend to be more stable (Biederman, Mick, & Faraone, 2000). As such, using a continuous symptom score helps to capture the variability of symptoms that has been documented to occur as children transition through development.

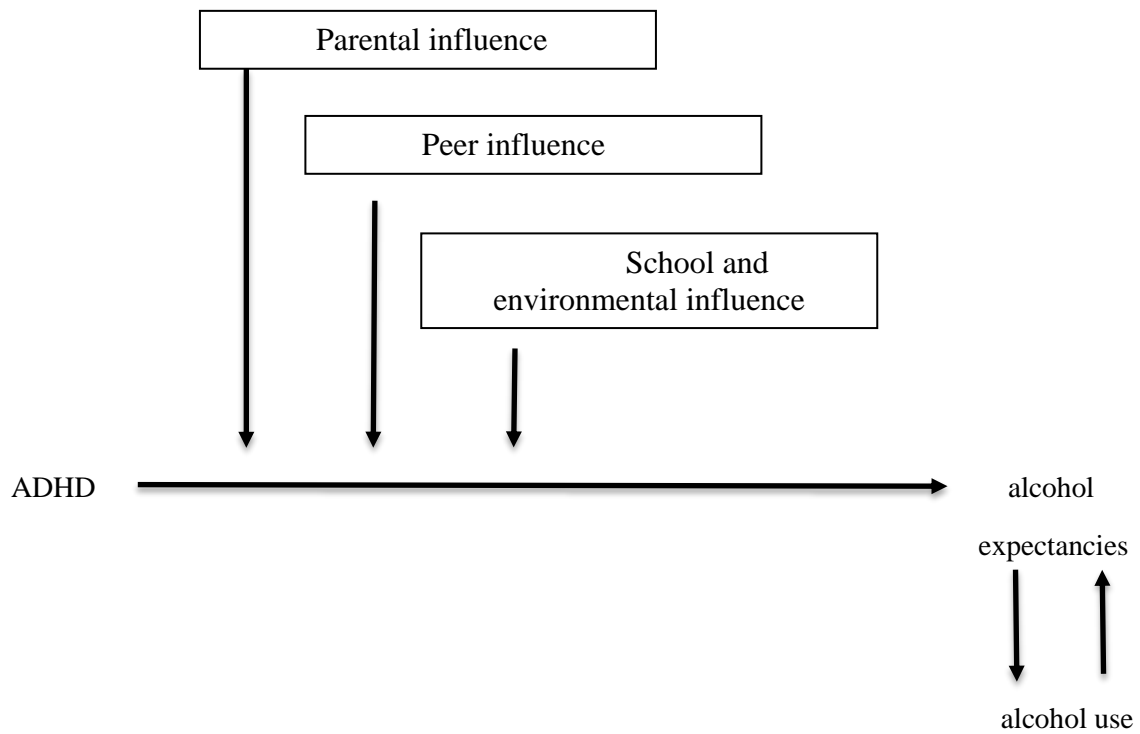


Figure 1.1. A conceptual model of social factors impacting the broad relation between ADHD and alcohol expectancies.

CHAPTER 2

METHOD

Participants

The current study included 379 children ($M_{age} = 12.5$ years; see Table 2.1) in regular and special education in grades 4-12 who participated in a larger study of 572 students in grades K-12 in a rural South Carolina county. Approximately 57% of participants were male. Participants were fairly diverse with respect to race/ethnicity: Caucasian (52.2%), African American (36.7%), Hispanic/Latino (1.6%), and multiracial or other racial groups (9.5%). Median family income of participants was reported to be \$35,000-\$49,000 annually, with reported annual incomes ranging from less than \$5,000 to more than \$100,000. The current sample is representative of county population from which it was drawn.

Forty-two (11%) participants reported having previously consumed alcohol. However, past alcohol consumption was not assessed in fourth and fifth graders ($n=127$) in the sample. Given that previous research continues to study alcohol expectancies after the initiation of use (e.g., Nicolai et al., 2012; Pabst, Kraus, Piontek, Muller, & Demmel, 2014; Wilson, Wray, & Turrisi), individuals who had reported consuming alcohol were included in the analysis in order to maintain consistency with the existing research base.

Procedure

Data were drawn from a two-stage population-based study. For the first stage of the study, parents and/or legal guardians of all students enrolled in a rural school district

were contacted via mail and were instructed to return a postcard if they did not want to be eligible for participation in the study. Parents who provided passive consent were included in the first stage of the study. For this stage, teachers completed a brief screening form about each student in his or her classroom in order to identify students who were at high or low risk for behavioral and emotional concerns.

Based on teacher responses in the first stage of the study, students were recruited for participation in the second stage of the study via random selection from eight strata based on risk for behavioral and emotional concerns (i.e., high, low), sex (i.e., male, female), and age (i.e., elementary, middle/high school). Participants' parent or legal guardian was contacted via telephone by a research assistant and invited to participate in a voluntary in-person interview. All interviews were held at a school in school district from which participants were recruited. Parents were instructed to bring their child to the study interview if he or she was in grades 4-12; self-report data from younger children was not collected. Although parents of children in grades K-12 participated in the larger study, only data from children in grades 4-12 are included in the current study.

Participants received reminder calls and text messages to remind them of the interview over the course of the week prior to its scheduled date. On the day of participants' scheduled interview, participants (both parent and child) arrived at the designated local school and were greeted by a research assistant. Parents and children completed study measures in separate rooms to maintain study confidentiality. Parents provided informed consent to participate in the study and children provided study assent. If both the parent and the child did not provide consent, then the family unit was not included in the study. Parents completed a demographics questionnaire as well as

questionnaires assessing their child's behavioral and emotional functioning, school climate, and their own parenting. Children completed questionnaires assessing school climate, parenting, and alcohol expectancies. Prior to completing the alcohol expectancies questionnaire, children were prompted to name two different types of alcohol. If children were not able to complete this preliminary step, the alcohol expectancy measure was not administered. All children participating in the study were offered at least one break including a snack and a drink so as to prevent study fatigue.

Upon completion of measures, parents and children were thanked for their participation and were provided with a total of \$75 monetary compensation (\$50 for parent, \$25 for child). Interviews were scheduled for and typically took two hours total, although completion time ranged from approximately 1.5 to 3.5 hours. Within a few weeks of participation, all participating parents received a written summary of their report of their child's behavior via mail. For parents whose report indicated the presence of behavioral and emotional concerns, a list of community mental health providers was also included with the written summary. All study procedures were approved by the University of South Carolina Institutional Review Board (see Appendices A, B).

Measures

Demographics. Parents completed a 29-item demographics questionnaire in order to gather background information about both parents and the child participating in the study (see Appendix C). Questions asked parents to provide their child's date of birth, gender, race (e.g., Which group(s) describes your child?), and physical health (e.g., Does your child have any ongoing physical health problems that have been diagnosed by a health care worker (asthma, diabetes, etc.)?). Annual household income, insurance status

for the child, number of adults in the home, and questions about religion and spirituality (e.g., To what extent to you consider your child to be a religious person?) were also included.

ADHD Symptoms. ADHD symptoms were assessed by parent report on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), a widely-used questionnaire that measures emotional and behavioral difficulties in children and adolescents ages 6 to 18 years. Research has demonstrated convergence between CBCL scales and symptoms of various disorders in both community and clinic-referred samples (e.g., Edelbrock & Costello, 1988; Ferdinand et al., 2004; Kazdin & Heidish, 1984; Steinhausen, Winkler, Metzke, Meier, & Kannenberg, 1997).

The CBCL consists of 118 items and has an interrater reliability of .95 and an internal consistency of .78 to .97 (Achenbach & Rescorla, 2001). Items on the CBCL are rated on a two-point scale (i.e., not true, somewhat or sometimes true, very true or often true). The Attention Problems scale of the CBCL includes 10 questions that assess behaviors associated with ADHD (e.g., Fails to finish things he/she starts; Can't concentrate, can't pay attention for long; Impulsive or acts without thinking). For additional survey questions see Appendix D, Items on the Attention Problems Scale of the Child Behavior Checklist. Studies have also found that the Attention Problems scale predicts ADHD diagnosis (Biederman et al., 1993). For the current study, the T score value for the Attention Problems scale was used as a continuous predictor of ADHD; previous research has indicated that the T-score for this subscale has a positive predictive value in the diagnosis of ADHD in a community sample (Kim, Park, Cheon, Kim, Cho,

& Hong, 2005). Internal consistency of the Attention Problems T-score for the current study was good ($\alpha = 0.89$).

Memory-Model Based Expectancy Questionnaire (MMBEQ). Children completed the 41-item MMBEQ (Dunn, 1999; Dunn & Goldman, 1996) to assess how they expect drinking alcohol impacts a person's behavior and feelings. See Appendix E, Memory-Model Based Expectancy Questionnaire, for all items on this questionnaire. Children first read a word (e.g., mad, outgoing, sleepy, loud) and then reported how often people experience the given word following alcohol. Each expectancy word was rated on a four-point scale (never, sometimes, usually, always). Previous studies have provided strong psychometric support for the MMBEQ. Dunn and Goldman (1996, 1998) found that the reliability of the MMBEQ among second to fifth graders was good ($\alpha = 0.76$), and the reliability for third, sixth, ninth, and twelfth graders was strong ($\alpha = 0.81$).

Items map onto four distinct expectancy factors: positive-social (e.g., content, fun), negative arousal (e.g., rude, sad), sedated/impaired (e.g., dizzy, sleepy), and wild/crazy (e.g., hyper, loud). For the current study, only items on the positive-social factor were included in the analyses. Internal consistency for positive-social factor within the current study was good ($\alpha = 0.87$).

Alabama Parenting Questionnaire (APQ). The APQ (Frick, 1991) was used to assess parenting. The 42-item questionnaire has both a child (Appendix F, Alabama Parenting Questionnaire – Child Form) and parent version (Appendix G, Alabama Parenting Questionnaire – Parent Form), and both versions were completed in the current study. Items on the questionnaire assess five dimensions of parenting (e.g., positive involvement with children, poor supervision and monitoring, use of positive discipline

techniques, consistency in the use of such discipline, and use of corporal punishment). Frick (1991) reported that the internal consistency reliability across subscales was good. For the current study, only the positive discipline, poor supervision/monitoring, and parental involvement subscales were used in primary analyses.

In the current study, child report yielded excellent internal consistency for the parental involvement subscale ($\alpha = 0.90$) and good internal consistency for the positive parenting subscale ($\alpha = 0.81$) and poor supervision/monitoring subscale ($\alpha = 0.73$). Internal consistency for child report on the APQ was poor for both the inconsistent discipline ($\alpha = 0.63$) and corporal punishment ($\alpha = 0.38$) subscales. For parent report, internal consistency was adequate for the positive discipline subscale ($\alpha = 0.78$), poor supervision/monitoring subscale ($\alpha = 0.70$), parental involvement subscale ($\alpha = 0.78$), and inconsistent discipline subscale ($\alpha = 0.73$) in the current study. Internal consistency was poor for parent report on the corporal punishment subscale in the present study ($\alpha = 0.36$).

School climate. Two measures of school climate were used in the current study. For students, school climate was assessed via the Psychological Sense of School Membership Scale (PSSM; Goodenow, 1993). The PSSM includes 18 questions tapping into the extent to which students feel accepted, respected, included, and supported in the school environment (e.g., I feel like a real part of my school, There's at least one adult in this school I can talk to if I have a problem, People at this school are friendly to me). Respondents answer on a five-point likert-type scale. See Appendix H, Psychological Sense of School Membership Scale, for all questions. The total PSSM score is the

average item response across all 18 items (e.g., Goodenow, 1993; Zumbrunn, McKim, Buhs, & Hawley, 2014).

The PSSM was found to have a test-retest reliability of .78 (Hagborg, 1994). Previous research has found moderate to high correlations in support of the PSSM's concurrent validity, such that PSSM scores correlate positively with school success (Goodenow, 1993; McMahon, Parnes, Keys, & Viola, 2008). Internal consistency was good for the current study ($\alpha = 0.87$).

For parents, school climate was assessed with the Parent Perceptions of School Climate Scale (Schueler, Capotoso, Bahena, McIntyre, & Gelbach, 2014; Appendix I). All items from the Parent Perceptions of School Climate Scale are listed in Appendix I. This seven-item scale includes items assessing both academic and social elements of school climate. The first six items are measured on a five-point likert-type scale and the last item is measured on a seven-point likert scale. A total score is created by summing the response for each item. Schueler and colleagues (2014) found that the scale had good psychometric properties including internal consistency ($\alpha = 0.88$), and that the measure had strong positive correlations with other measures of school climate. In the current study, internal consistency was good ($\alpha = 0.88$).

Table 2.1 *Demographics of the Sample*

<u>Demographic Characteristics</u>	<u><i>n</i> (% of Sample)</u>
Gender	
Female	175 (46.2)
Male	204 (56.8)
Race	
Caucasian	198 (52.2)
Black or African American	139 (36.7)
Hispanic or Latino	6 (1.6)
American Indian or Alaska Native	3 (0.8)
Multiracial or Other	36 (9.5)
Age	
9	32 (8.4)
10	58 (15.3)
11	56 (14.8)
12	67 (17.7)
13	38 (10.0)
14	44 (11.6)
15	35 (9.2)
16	22 (5.8)
17	17 (4.5)
18	9 (2.4)
19	1 (.3)
Family's Annual Income	
Less than \$5,000	21 (5.5)
\$5,000 - \$9,999	10 (2.6)
\$10,000 - \$14,999	18 (4.7)
\$15,000 - \$19,999	19 (5.0)
\$20,000 - \$24,999	32 (8.4)
\$25,000 - \$34,999	46 (12.1)
\$35,000 - \$49,999	46 (12.1)
\$50,000 - \$74,999	71 (18.7)
\$100,000 or over	63 (16.6)
Declined to answer	3 (.8)
Total	379 (100)

CHAPTER 3

RESULTS

All statistical analyses were conducted using IBM SPSS Statistics Version 26, and all significance tests were conducted at the .05 level. A G*Power analysis indicated that the total sample size should be 107 cases in order to have a power of .95 to detect a “medium” effect size ($f = 0.15$) and an alpha of 0.05 assuming a correlation among measures of 0.05 (Faul, Erdfelder, Lang & Buchner, 2007). Given that the sample for the current study included 379 participants, the sample size was large enough to detect a significant finding with the inclusion of gender and age as covariates. All instances of missing data were coded as missing in the dataset to ensure their omission from analyses. Although the total sample size was 379, there were 38 participants that did not complete the MMBEQ. Of the 379 total participants, 279 (73.6%) did not have any instances of missing data across all study measures. Eighty-nine (23.5%) of participants were missing data for one study measure, 10 (2.6%) of participants were missing data for two study measures, and one participant (0.3%) was missing data from all measures except for the demographics questionnaire. Listwise deletion was utilized to handle all instances of missing data.

Preliminary Analyses

Preliminary analyses included testing to ensure that assumptions were met for regression. The general linear regression model assumes the independent and dependent

variable are linearly related (e.g., ADHD symptoms increase with positive alcohol expectancies), variance of the residual terms is constant, levels of the independent variable are fixed, and independence of error terms. These assumptions were tested by examining descriptive statistics (Table 3.1), running correlations among the variables (Table 3.2), creating a scatterplot of the residual terms for the variables, and creating a single bar graph for each variable to assess for normal distribution. A visual review of the bar graph findings indicated that some of the moderator variables were skewed (e.g., both parent and child report of positive parenting was positively skewed). Before moving forward with transforming the data, normality of the residuals was examined for all analyses conducted. Visual inspection of both histograms and scatterplots of the standardized residuals indicated normal distribution. As such, results are reported with untransformed variables given that assumptions were met for all analyses conducted.

Bivariate correlations revealed a significant negative correlation between ADHD and positive alcohol expectancies, such that positive alcohol expectancies scores decreased as ADHD symptoms increased. This correlation was not in the expected direction, as it was predicted that ADHD and positive alcohol expectancies would be positively correlated. The only parenting factor that was significantly correlated with positive alcohol expectancies was parent report of poor parental monitoring. Parent report of poor parental monitoring was positively correlated with positive alcohol expectancies, indicating that as parents report greater levels of poor parental monitoring, child report of positive alcohol expectancies increases. This significant correlation was in the expected direction, as it was predicted that poor parental monitoring and positive alcohol expectancies would be inversely related.

Parent report of school climate was found to be significantly negatively correlated with positive alcohol expectancies. As parent report of school climate increased, positive alcohol expectancies decreased. This finding is in the expected direction, as it was predicted that positive school climate would be a protective factor for alcohol expectancies, thus resulting in lower positive alcohol expectancies scores.

Several predictor variables were significantly correlated with ADHD. Child and parent report of positive parenting as well as child and parent report of parental involvement all had a significant negative correlation with ADHD. As such, results indicate that ADHD symptoms decrease as both child and parent report of positive parenting and parental involvement increase. These findings were in the expected direction given the documented relation between ADHD and positive parenting factors. Both child and parent reports of school climate were also significantly negatively correlated with ADHD. As child and parent report of school climate increases, ADHD symptoms decrease. This correlation was in the expected direction, as children with ADHD typically have more peer and academic problems and may experience school more negatively.

Primary and Secondary Analyses

The first three hypotheses stated that each parenting factor (hypothesis 1 – positive parenting, 2 – poor parental monitoring, 3 – parental involvement) would moderate the relation between ADHD symptoms and positive alcohol expectancies. Primary analyses (i.e., hypotheses 1a, 2a, 3a) were conducted with child report of parenting factors and secondary analyses (i.e., hypotheses 1b, 2b, 3b) were conducted with parent report of their own parenting. Additionally, both gender (dichotomized as

male or female) and age (coded as reported age in years) were used as covariates in the stated hypotheses. Gender was used as a covariate due to both gender differences in the rates of ADHD and positive alcohol expectancies, with previous research documenting that males have higher rates of each of these (Barkley, 1998; Schulte, Ramo, & Brown, 2009). Similarly, age was used as a covariate because positive alcohol expectancies have been found to change throughout the course of adolescence (Cameron, Strizke, & Durkin, 2003; Dunn & Goldman, 1998, 2000). Thus, six linear regressions were completed testing both child and parent report of the three key parenting factors as moderators of the relation between ADHD symptoms and positive alcohol expectancies.

The first research question examined whether positive parenting moderated the relation between ADHD and positive alcohol expectancies. It was hypothesized that positive parenting would moderate the relation between ADHD symptoms and positive alcohol expectancies, such that the link between ADHD symptoms and positive alcohol expectancies would be weaker for youth whose parents engage in lower levels of positive parenting. For both hypothesis 1a (child report of positive parenting) and hypothesis 1b (parent report of positive parenting), the regression was fit and variables were entered into both regression models as described above. Results did not support hypothesis 1a; child report of positive parenting does not moderate the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.01$, $t = 0.67$, $p = 0.50$. See Table 3.3, Table 3.4, and Figure 3.1.

Although parent report of positive parenting does moderate the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.06$, $t = 3.72$, $p < 0.001$ (see Tables 3.5 and 3.6), results do not support hypothesis 1b. Simple slopes analyses (Figure

3.2) indicate that, when parent report of positive parenting is low, there is a significant negative relation between ADHD symptoms and positive alcohol expectancies, $b = -0.18$, $t = -2.63$, $p < 0.05$. When parent report of positive parenting is high, there is a significant positive relation between ADHD symptoms and positive alcohol expectancies, $b = 0.20$, $t = 2.22$, $p < 0.05$. When parent report of positive parenting is at the mean value, there is a non-significant negative relation between ADHD symptoms and positive alcohol expectancies, $b = 0.01$, $t = 0.16$, $p = 0.87$. Given that hypothesis 1b stated that higher levels of parent-reported positive parenting would result in a negative relation between ADHD symptoms and positive alcohol expectancies (e.g., as ADHD symptoms increase, positive alcohol expectancies decrease), the findings are not in the expected direction and do not support hypothesis 1b.

The second question examined whether poor parental monitoring moderated the relation between ADHD symptoms and positive alcohol expectancies. It was hypothesized that poor parental monitoring (child report – hypothesis 2a, parent report – hypothesis 2b) would moderate the relation between ADHD symptoms and positive alcohol expectancies, such that the link between ADHD and positive alcohol expectancies will be weaker for youth whose parents are more involved in their day-to-day lives. Results did not support hypothesis 2a or 2b, and showed that neither child report of poor parental monitoring ($b = 0.02$, $t = 1.65$, $p = 0.10$) nor parent report of poor parental monitoring ($b = 0.00$, $t = -0.24$, $p = 0.81$) moderated the relation between ADHD symptoms and positive alcohol expectancies. Results for hypothesis 2a are summarized in Table 3.7, Table 3.8, and Figure 3.3. Results for hypothesis 2b are summarized in Table 3.9, Table 3.10, and Figure 3.4.

The third research question assessed whether parental involvement moderates the relation between ADHD symptoms and positive alcohol expectancies. It was hypothesized that parental involvement will moderate the relation between ADHD and alcohol expectancies, such that the link between ADHD symptoms and positive alcohol expectancies will be weaker for youth whose parents use more positive parenting strategies. Child report of parental involvement does not moderate the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.00$, $t = 0.96$, $p = 0.34$. As such, hypothesis 3a is not supported; results are summarized in Table 3.11, Table 3.12, and Figure 3.5. Similarly, parent report of parental involvement does not moderate the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.02$, $t = 5.46$, $p = 0.18$. Thus, hypothesis 3b is not supported. Results for hypothesis 3b are presented in Table 3.13, Table 3.14, and Figure 3.6.

The fourth hypothesis stated that school climate will moderate the relation between ADHD symptoms and positive alcohol expectancies, such that the link between ADHD symptoms and positive alcohol expectancies will be weaker for youth with a positive school climate. As with the first three hypotheses, primary analysis (i.e., hypothesis 4a) was conducted with child report of school climate and secondary analysis (i.e., hypothesis 4b) was conducted with parent report of school climate. Both gender and age were again used as covariates in the analyses. Although child-reported school climate moderates the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.20$, $t = 2.33$, $p < 0.05$ (see Table 3.15), results do not support hypothesis 4a. When child-reported school climate is low, there is a significant negative relation between

ADHD symptoms and positive alcohol expectancies, $b = -0.17$, $t = -2.18$, $p < 0.05$ (see Table 3.16).

As shown in Figure 3.7, when there are low levels of student-reported school climate, there is an inverse relation between ADHD symptoms and positive alcohol expectancies. This finding is inconsistent with hypothesis 4a, which stated that there will be an inverse relation between ADHD symptoms and positive alcohol expectancies at high, rather than low, levels of student-reported school climate. There is a non-significant negative relation between ADHD symptoms and positive alcohol expectancies when child-reported school climate is at the mean value ($b = -0.04$, $t = -0.61$, $p = 0.54$) and a non-significant positive relation between ADHD symptoms and positive alcohol expectancies when child-reported school climate is high ($b = 0.09$, $t = 1.06$, $p = 0.29$).

Similarly, while parent report of school climate moderates the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.03$, $t = 4.39$, $p < 0.05$ (see Table 3.17), results do not support hypothesis 4b. When parent-reported perception of school climate is low, there is a significant negative relation between ADHD symptoms and positive alcohol expectancies, $b = -0.21$, $t = -2.79$, $p < 0.05$; see Table 3.18. There is a non-significant negative relation between ADHD symptoms and positive alcohol expectancies when parent-reported school climate is at the mean value ($b = -0.04$, $t = -0.64$, $p = 0.52$) and a non-significant positive relation between ADHD symptoms and positive alcohol expectancies when parent-reported school climate is high ($b = 0.13$, $t = 1.31$, $p = 0.16$). Figure 3.8 illustrates this finding. As such, the results are inconsistent with hypothesis 4b, which stated that ADHD symptoms will increase and positive alcohol

expectancies will decrease at high, rather than low, levels of parent-reported school climate.

Exploratory Analyses

Additional exploratory analyses were completed in order to better understand the relation between ADHD symptoms and positive alcohol expectancies. First, the two remaining subscales of the APQ, inconsistent discipline and corporal punishment, were tested as moderators of the relation between ADHD symptoms and positive alcohol expectancies. As with the hypotheses one through four, both gender and age were used as covariates for these analyses. Results indicated that child report of inconsistent discipline did not moderate the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.01$, $t = 0.75$, $p = 0.45$ (Table 3.19, Table 3.20, Figure 3.9). Similarly, parent-reported inconsistent discipline did not moderate the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.01$, $t = 0.34$, $p = 0.74$ (Table 3.21, Table 3.22, Figure 3.10). Results further indicated that child report of corporal punishment did not moderate the relation between ADHD symptoms and positive alcohol expectancies ($b = -0.04$, $t = -1.32$, $p = 0.19$; Table 3.23, Table 3.24, Figure 3.11), nor did parent report of corporal punishment moderate the relation between ADHD symptoms and positive alcohol expectancies ($b = -0.03$, $t = -0.84$, $p = 0.40$; Table 3.25, Table 3.26, Figure 3.12).

Further exploratory analyses were conducted to examine the effect of age on hypotheses one through four. As such, each of the four hypotheses were run again without using age as a covariate. When age was not a covariate, parent report of positive parenting did moderate the relation between ADHD symptoms and positive alcohol

expectancies, but the significant effect only held true at low levels of positive parenting instead of both low and high levels as with the main study analyses. The pattern of significant results for all other analyses without age as a covariate did not change.

All four study hypotheses were also run using data only from participants who reported being alcohol naïve ($n=209$); for these analyses, age and gender were used as covariates. When only using data from alcohol naïve participants, child report of positive parenting moderated the relation between ADHD symptoms and positive alcohol expectancies, $b = 0.05$, $t = 2.75$, $p < 0.05$ (Table 3.27). At low levels of child-reported positive parenting among alcohol naïve participants, there is a significant negative relation between ADHD symptoms and positive alcohol expectancies, $b = -4.57$, $t = -2.67$, $p < 0.05$; see Table 3.28. There is a non-significant negative relation between ADHD symptoms and positive alcohol expectancies among alcohol naïve participants when child-reported positive parenting is at the mean value ($b = -0.05$, $t = -0.59$, $p = 0.55$) and a non-significant positive relation between ADHD symptoms and positive alcohol expectancies when child-reported positive parenting is high ($b = 0.18$, $t = 1.47$, $p = 0.14$). Figure 3.13 illustrates that, at low levels of child-reported positive parenting among alcohol naïve participants, positive alcohol expectancies decrease as ADHD symptoms increase. Additionally, parent report of positive parenting did moderate the relation between ADHD symptoms and positive alcohol expectancies for alcohol naïve children, but the significant effect only held true at low levels of positive parenting as compared to low and high levels for analyses with all participants. For all additional analyses with alcohol naïve participants, the pattern of significant results remained the same.

Table 3.1 *Descriptive Statistics for Predictor and Outcome Variables*

	Mean (SD)	Min - Max	Skew	Kurtosis
ADHD Symptoms	55.64 (7.70)	50-95	1.75	3.52
Positive Parenting – Child Report	17.74 (4.69)	0-24	-.53	-.26
Positive Parenting – Parent Report	20.28 (3.09)	9-24	-.92	.55
Parental Monitoring – Child Report	9.03 (6.51)	0-36	.97	1.11
Parental Monitoring – Parent Report	4.55 (4.47)	0-22	1.29	1.60
Parental Involvement – Child Report	48.13 (14.70)	8-76	-.21	-.42
Parental Involvement – Parent Report	31.00 (5.03)	13-40	-.52	.27
School Climate – Child Report	3.87 (.66)	1.33-5.00	-.70	.42
School Climate – Parent Report	27.90 (5.70)	9-37	-.60	.18
Positive Alcohol Expectancies	40.29 (9.10)	18-68	-.33	.45

Table 3.2 *Correlations Among Study Variables*

<i>Bivariate Correlations</i>									
	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
1. Positive Alcohol Expectancies	-.109*	.016	-.031	.103	.214**	.079	-.034	-.017	-.184*
2. ADHD Symptoms	1	-.156*	-.144*	.067	-.010	-.211**	-.195**	-.135**	-.169**
3. Positive Parenting – Child Report		1	.338**	-.188**	-.148*	.641**	.334**	.363**	.144**
4. Positive Parenting – Parent Report			1	-.121*	-.194**	.191**	.632**	.103*	.213**
5. Parental Monitoring – Child Report				1	.363**	-.133*	-.198**	-.255**	-.177**
6. Parental Monitoring – Parent Report					1	-.096	-.278**	.003	-.151**
7. Parental Involvement – Child Report						1	.309**	.370**	.019
8. Parental Involvement – Parent Report							1	.166**	.215**
9. School Climate – Child Report								1	.260**
10. School Climate – Parent Report									1

Note: * $p < .05$ (two-tailed), ** $p < .01$ (two-tailed).

Table 3.3 *Results of Regression Analyses for Moderating Effects of Child Report of Positive Parenting on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 1a)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.51	3.10	9.85	$p < .001$
ADHD symptoms (centered)	-.05	.06	-.82	$p = .41$
Child report of positive parenting (centered)	0.04	0.10	0.40	$p = 0.69$
ADHD x positive parenting	0.01	0.01	0.67	$p = 0.50$
Age	1.12	0.20	5.50	$p < .001$
Gender	-2.90	0.95	-3.05	$p = 0.01$

Table 3.4 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of Positive Parenting*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-4.73	-0.09	-1.18	<i>p</i> = .24
Mean	0	-0.05	-0.82	<i>p</i> = .41
High (1 SD above mean)	4.73	-0.01	-0.14	<i>p</i> = .89

Table 3.5 *Results of Regression Analyses for Moderating Effects of Parent Report of Positive Parenting on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 1b)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.42	2.98	10.22	$p < .001$
ADHD symptoms (centered)	0.01	0.06	0.16	$p = .87$
Parent report of positive parenting (centered)	0.05	0.15	0.33	$p = 0.74$
ADHD x positive parenting	0.06	0.02	3.72	$p < .001$
Age	1.16	0.20	5.85	$p < .001$
Gender	-3.01	0.92	-3.28	$p < .001$

Table 3.6 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Parent Report of Positive Parenting*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-3.15	-.18	-2.63	$p < .05$
Mean	0	.01	0.16	$p = .87$
High (1 SD above mean)	3.15	0.20	2.22	$p < .05$

Table 3.7 Results of Regression Analyses for Moderating Effects of Child Report of Parental Monitoring on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 2a)

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	31.09	3.18	9.78	$p < .001$
ADHD symptoms (centered)	-0.06	0.06	-1.05	$p = .29$
Child report of parental monitoring (centered)	0.06	0.08	0.76	$p = 0.45$
ADHD x parental monitoring	0.02	0.01	1.65	$p = 0.10$
Age	1.07	0.21	5.08	$p < .001$
Gender	-2.86	0.94	-3.04	$p < .001$

Table 3.8 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of Parental Monitoring*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-6.48	-0.17	-1.99	<i>p</i> = .05
Mean	0	-0.06	-1.05	<i>p</i> = .29
High (1 SD above mean)	6.48	0.05	0.50	<i>p</i> = .61

Table 3.9 *Results of Regression Analyses for Moderating Effects of Parent Report of Parental Monitoring on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 2b)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	33.32	3.36	9.92	$p < .001$
ADHD symptoms (centered)	-0.06	0.06	-1.09	$p = .28$
Parent report of parental monitoring (centered)	0.18	.012	1.55	$p = 0.12$
ADHD x parental monitoring	0.00	0.01	-0.24	$p = 0.81$
Age	0.91	0.23	3.95	$p < .001$
Gender	-3.00	0.93	-3.21	$p < .001$

Table 3.10 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Parent Report of Parental Monitoring*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-4.55	-0.05	-0.54	<i>p</i> = .59
Mean	0	-0.06	-1.09	<i>p</i> = .28
High (1 SD above mean)	4.55	0.08	-0.89	<i>p</i> = .37

Table 3.11 *Results of Regression Analyses for Moderating Effects of Child Report of Parental Involvement on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 3a)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	31.92	3.23	9.87	$p < .001$
ADHD symptoms (centered)	-0.06	0.07	-0.83	$p = .41$
Child report of positive involvement (centered)	0.04	0.03	1.06	$p = 0.29$
ADHD x parental involvement	0.00	0.00	0.96	$p = 0.34$
Age	1.03	0.21	4.93	$p < .001$
Gender	-2.99	1.00	-2.99	$p < .001$

Table 3.12 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of Parental Involvement*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-14.72	-0.13	-1.50	<i>p</i> = .13
Mean	0	-0.06	-0.83	<i>p</i> = .41
High (1 SD above mean)	14.72	0.01	0.10	<i>p</i> = .92

Table 3.13 *Results of Regression Analyses for Moderating Effects of Parent Report of Parental Involvement on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 3b)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	31.38	3.00	10.46	$p < .001$
ADHD symptoms (centered)	-0.05	0.06	-0.78	$p = .44$
Parent report of parental involvement (centered)	-0.04	0.09	-0.40	$p = 0.69$
ADHD x parental involvement	0.02	0.01	1.33	$p = 0.18$
Age	1.09	0.20	5.46	$p < .001$
Gender	-3.10	0.94	-3.32	$p < .001$

Table 3.14 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Parent Report of Parental Involvement*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-5.10	-0.13	-1.75	<i>p</i> = .08
Mean	0	-0.05	-0.78	<i>p</i> = .44
High (1 SD above mean)	5.10	0.03	0.33	<i>p</i> = .74

Table 3.15 *Results of Regression Analyses for Moderating Effects of Child Report of School Climate on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 4a)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.83	2.96	10.41	$p < .001$
ADHD symptoms (centered)	-0.04	0.06	-0.61	$p = .54$
Child report of school climate (centered)	0.42	0.73	0.57	$p = 0.57$
ADHD x school climate	0.20	0.09	2.33	$p < 0.05$
Age	1.13	0.20	5.69	$p < .001$
Gender	-3.13	0.94	-3.35	$p < .001$

Table 3.16 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of School Climate*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-0.65	-0.17	-2.18	$p < .05$
Mean	0	-0.04	-0.61	$p = .54$
High (1 SD above mean)	0.65	0.09	1.06	$p = .29$

Table 3.17 *Results of Regression Analyses for Moderating Effects of Parent Report of School Climate on the Relation between ADHD Symptoms and Positive Alcohol Expectancies (Hypothesis 4b)*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	33.35	3.05	10.94	$p < .001$
ADHD symptoms (centered)	-0.04	0.06	-0.64	$p = .52$
Parent report of school climate (centered)	-0.20	0.09	2.80	$p = 0.02$
ADHD x school climate	0.03	0.01	4.39	$p < .05$
Age	0.90	0.21	4.39	$p < .001$
Gender	-2.80	0.92	-3.03	$p < .001$

Table 3.18 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Parent Report of School Climate*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-5.67	-0.21	-2.79	$p < .05$
Mean	0	-0.04	-0.64	$p = .52$
High (1 SD above mean)	5.67	0.13	1.31	$p = .19$

Table 3.19 *Results of Regression Analyses for Moderating Effects of Child Report of Inconsistent Discipline on the Relation between ADHD Symptoms and Positive Alcohol Expectancies*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.62	3.02	10.14	$p < .001$
ADHD symptoms (centered)	-0.06	0.06	-1.03	$p = .30$
Child report of inconsistent discipline (centered)	0.03	0.11	0.24	$p = 0.81$
ADHD x inconsistent discipline	0.01	0.01	0.75	$p = 0.45$
Age	1.11	0.20	5.55	$p < .001$
Gender	-2.92	0.94	-3.12	$p < .001$

Table 3.20 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of Inconsistent Discipline*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-4.25	-0.11	-1.31	<i>p</i> = .19
Mean	0	-0.06	-1.03	<i>p</i> = .30
High (1 SD above mean)	4.25	0.02	-0.19	<i>p</i> = .85

Table 3.21 *Results of Regression Analyses for Moderating Effects of Parent Report of Inconsistent Discipline on the Relation between ADHD Symptoms and Positive Alcohol Expectancies*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.08	2.98	10.32	$p < .001$
ADHD symptoms (centered)	-0.07	0.06	-1.06	$p = .29$
Parent report of inconsistent discipline (centered)	0.01	0.13	0.09	$p = 0.93$
ADHD x inconsistent discipline	0.01	0.02	0.34	$p = 0.74$
Age	1.11	0.20	5.62	$p < .001$
Gender	-2.99	0.94	-3.18	$p < .001$

Table 3.22 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Parent Report of Inconsistent Discipline*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-3.72	-0.09	-0.95	<i>p</i> = .34
Mean	0	-0.07	-1.06	<i>p</i> = .29
High (1 SD above mean)	4.25	-0.04	-0.54	<i>p</i> = .59

Table 3.23 *Results of Regression Analyses for Moderating Effects of Child Report of Corporal Punishment on the Relation between ADHD Symptoms and Positive Alcohol Expectancies*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.93	2.99	10.36	$p < .001$
ADHD symptoms (centered)	-0.05	0.06	-0.82	$p = .41$
Child report of corporal punishment (centered)	-.10	0.23	-0.45	$p = 0.65$
ADHD x corporal punishment	-0.04	0.03	-1.32	$p = 0.19$
Age	1.10	0.20	5.45	$p < .001$
Gender	-2.93	0.95	-3.08	$p < .001$

Table 3.24 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of Corporal Punishment*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-1.76	0.02	0.26	<i>p</i> = .79
Mean	0	-0.05	-0.82	<i>p</i> = .41
High (1 SD above mean)	2.14	0.08	-1.64	<i>p</i> = .10

Table 3.25 *Results of Regression Analyses for Moderating Effects of Parent Report of Corporal Punishment on the Relation between ADHD Symptoms and Positive Alcohol Expectancies*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	30.55	3.00	10.20	$p < .001$
ADHD symptoms (centered)	-0.05	0.06	-0.87	$p = .39$
Parent report of corporal punishment (centered)	0.04	0.29	0.16	$p = 0.88$
ADHD x corporal punishment	-0.03	0.04	-0.84	$p = .40$
Age	1.13	0.20	5.67	$p < .001$
Gender	-2.91	0.95	-3.08	$p < .001$

Table 3.26 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Parent Report of Corporal Punishment*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-1.44	-0.01	-0.11	<i>p</i> = .91
Mean	0	-0.05	-0.87	<i>p</i> = .39
High (1 SD above mean)	1.63	-0.10	-1.34	<i>p</i> = .18

Table 3.27 *Results of Regression Analyses for Moderating Effects of Child Report of Positive Parenting on the Relation between ADHD Symptoms and Positive Alcohol Expectancies Among Alcohol Naïve Participants*

	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	35.73	5.04	7.09	$p < .001$
ADHD symptoms (centered)	-0.05	0.08	-0.59	$p = .55$
Child report of positive parenting (centered)	0.00	0.13	0.02	$p = 0.98$
ADHD x positive parenting	0.05	0.02	2.75	$p < .05$
Age	0.95	0.33	2.88	$p < .001$
Gender	-4.70	1.21	-3.89	$p < .001$

Table 3.28 *Conditional Effects of ADHD Symptoms on Positive Alcohol Expectancies at Low, Mean, and High Values of Child Report of Positive Parenting Among Alcohol Naïve Participants*

	Value	<i>b</i>	<i>t</i>	<i>p</i>
Low (1 SD below mean)	-4.57	-0.27	-2.67	$p < 0.05$
Mean	0	-0.05	-0.59	$p = 0.55$
High (1 SD above mean)	4.57	0.18	1.47	$p = 0.14$

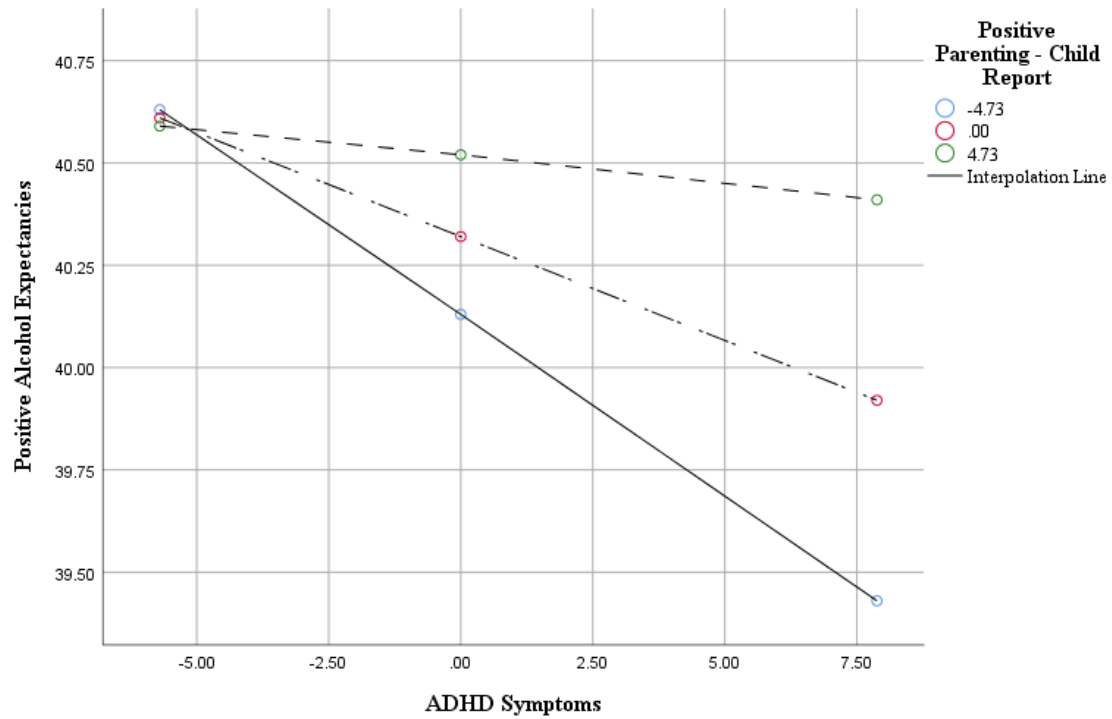


Figure 3.1. Child report of positive parenting does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

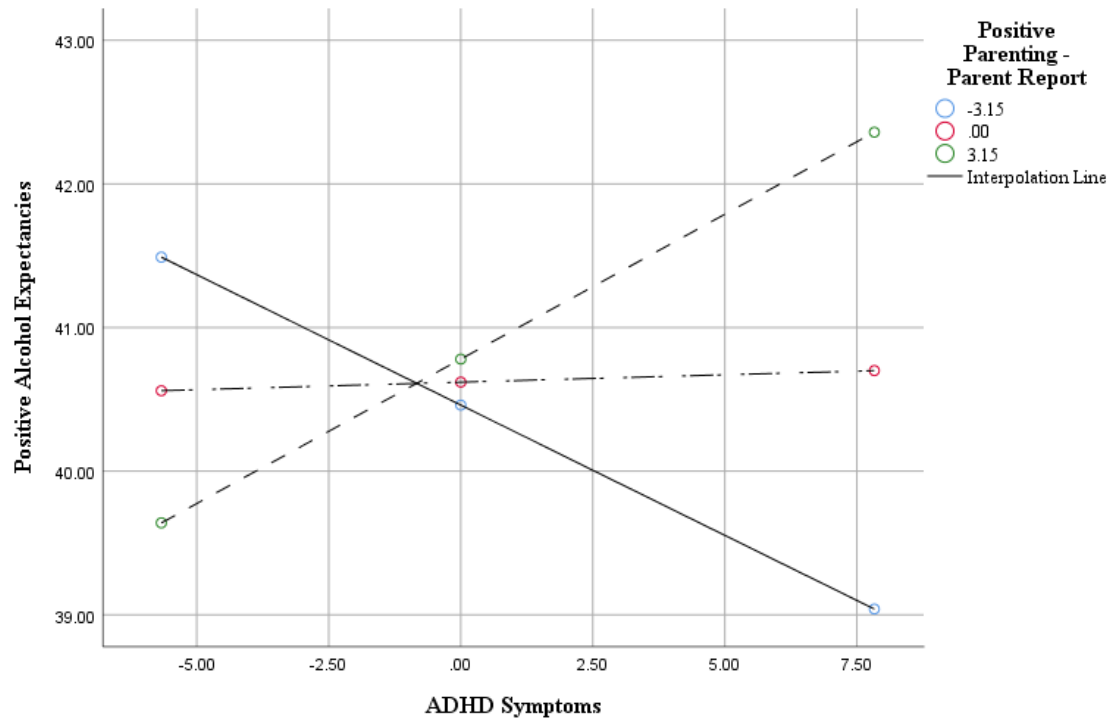


Figure 3.2. Parent report of positive parenting moderates the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low (one SD below the mean) and high levels of positive parenting (one SD above the mean) were statistically significant, $p < 0.05$.

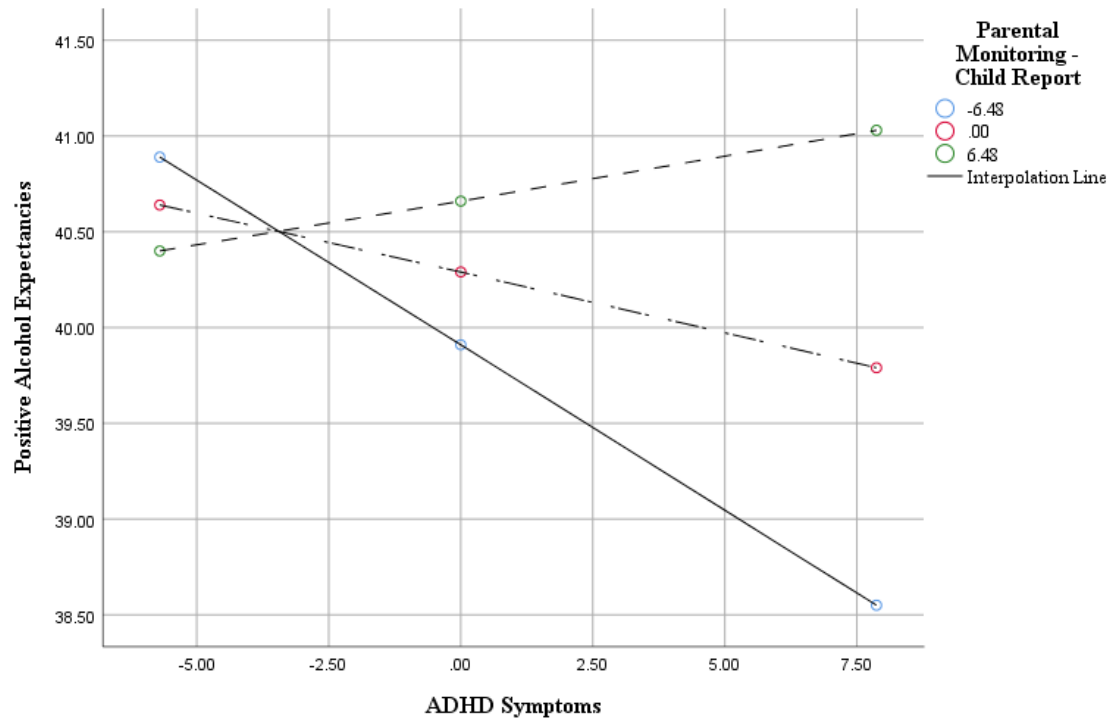


Figure 3.3. Child report of parental monitoring does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

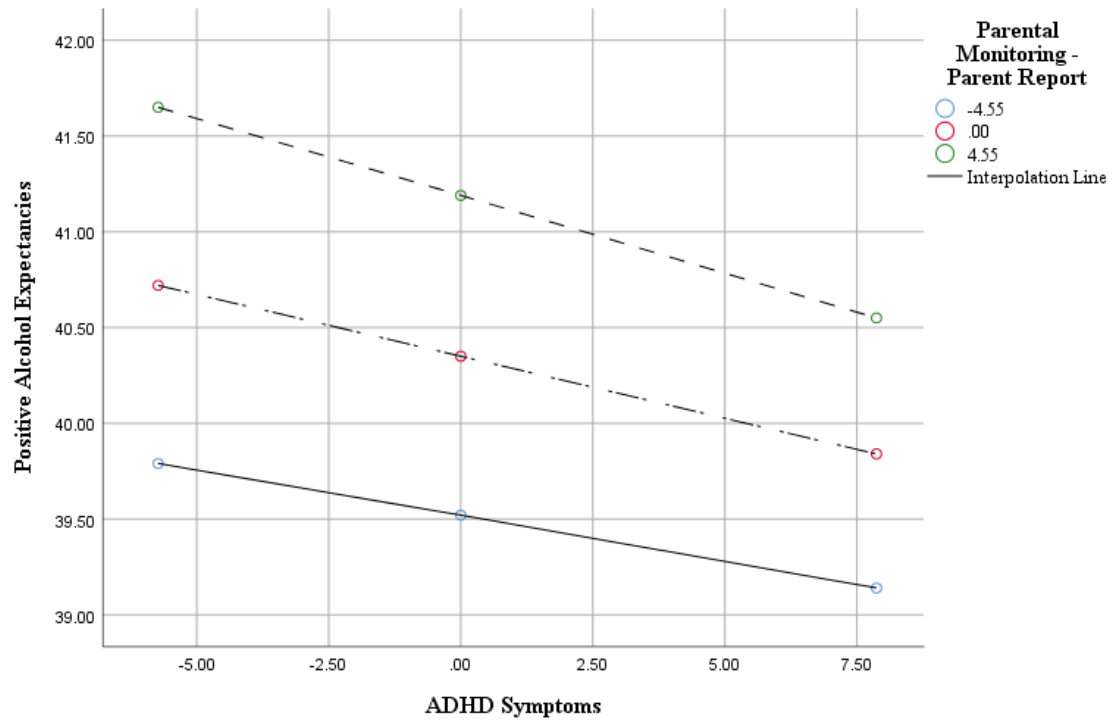


Figure 3.4. Parent report of parental monitoring does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

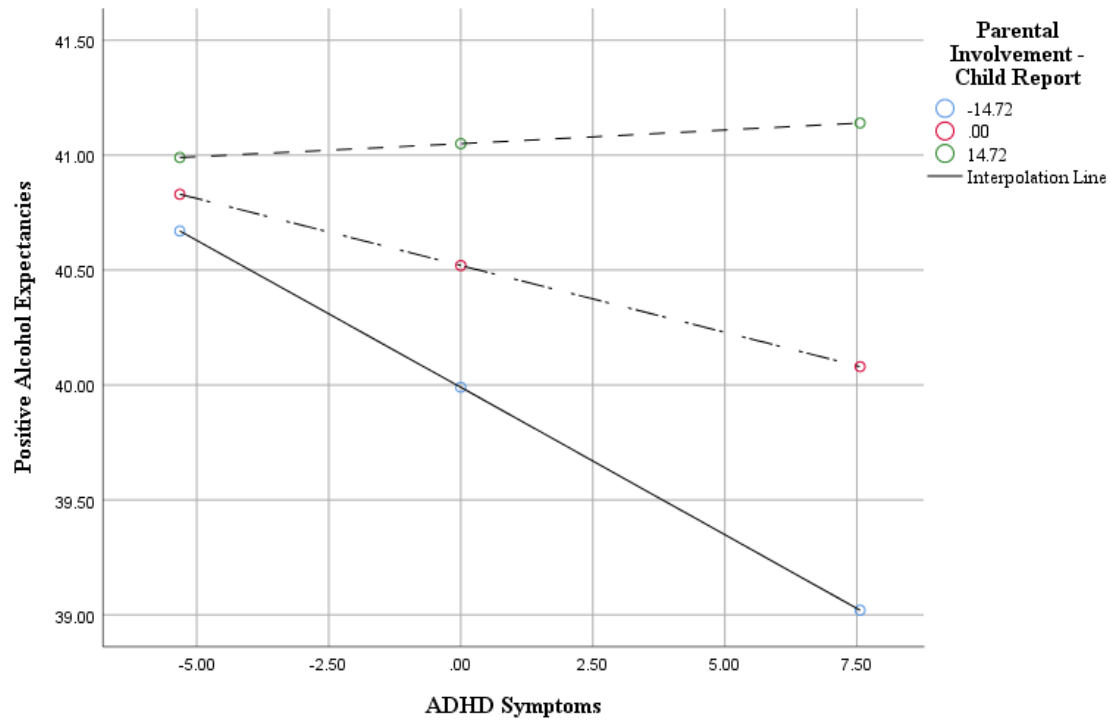


Figure 3.5. Child report of parental involvement does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

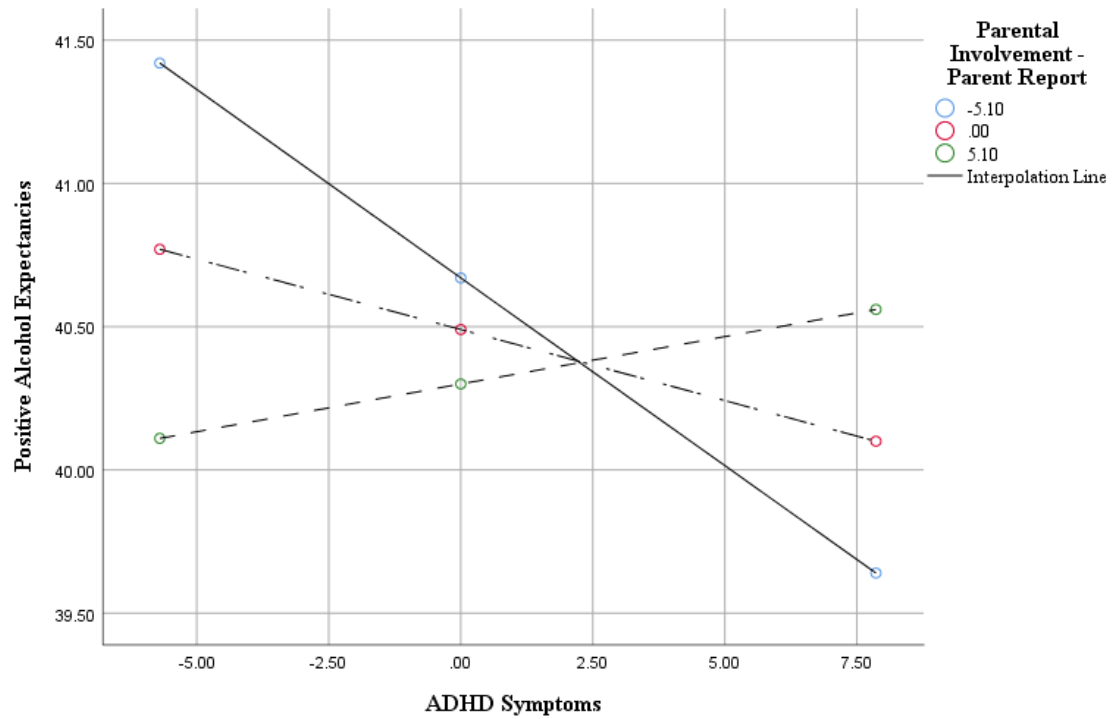


Figure 3.6. Parent report of parental involvement does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

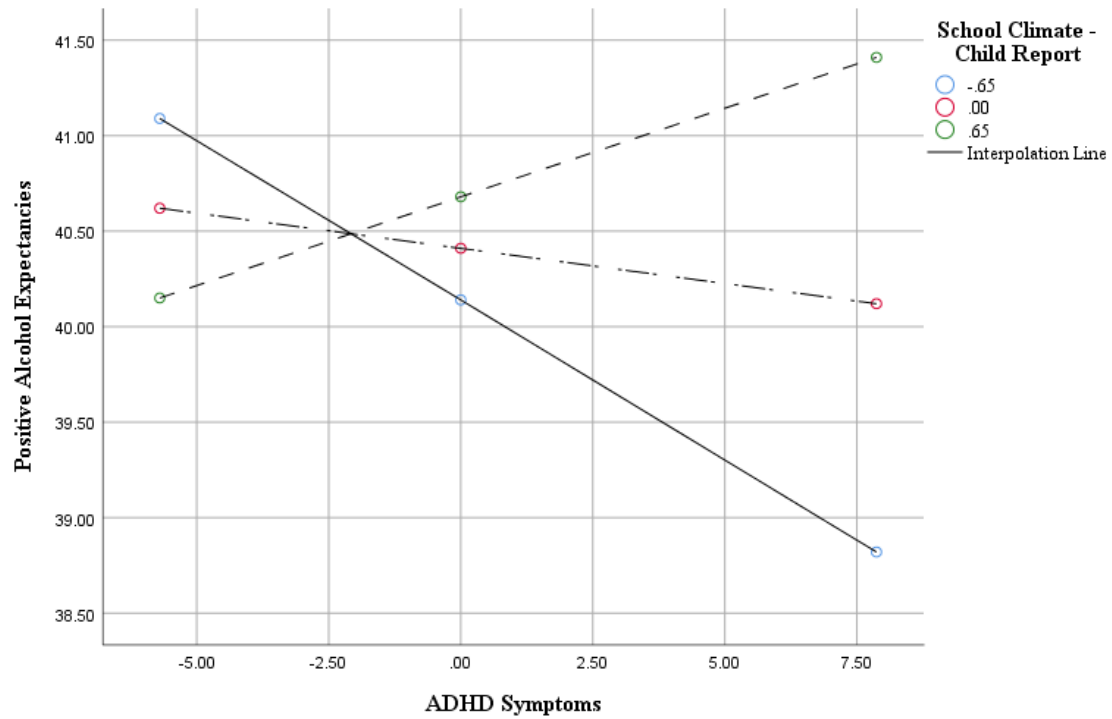


Figure 3.7. Child report of school climate moderates the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low (one SD below the mean) level of school climate were statistically significant, $p < 0.05$. Simple slopes at the mean and high (one SD above the mean) levels of school climate were not statistically significant, $p > 0.05$.

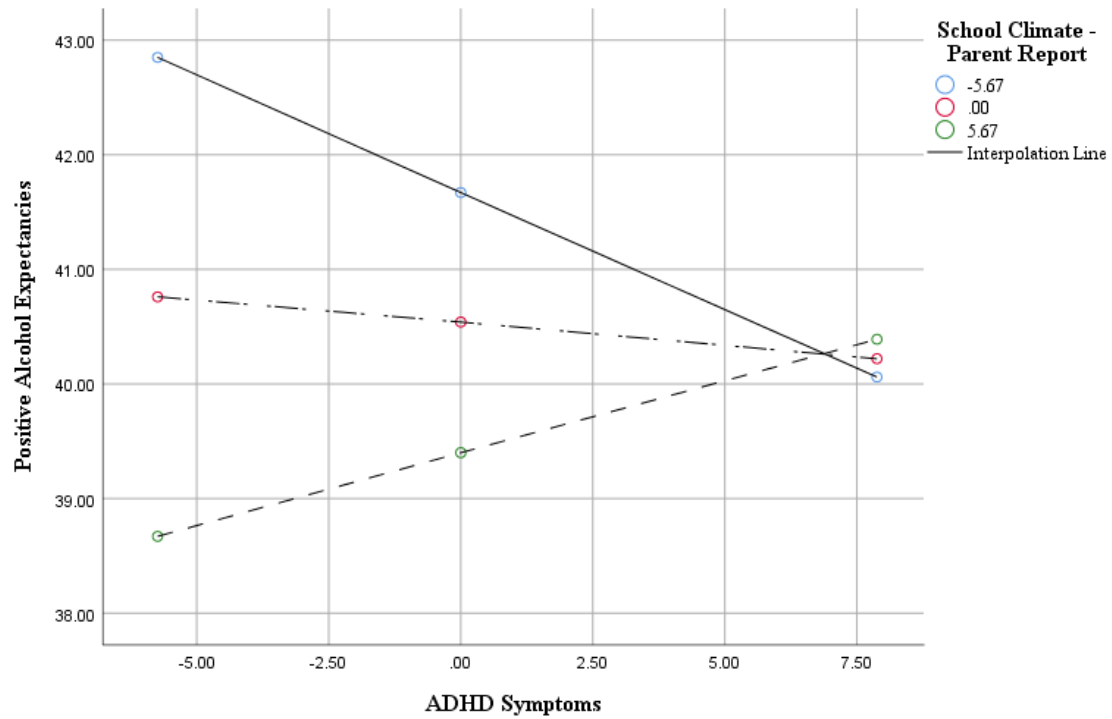


Figure 3.8. Parent report of school climate moderates the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low (one SD below the mean) level of school climate were statistically significant, $p < 0.05$. Simple slopes at the mean and high (one SD above the mean) levels of school climate were not statistically significant, $p > 0.05$.

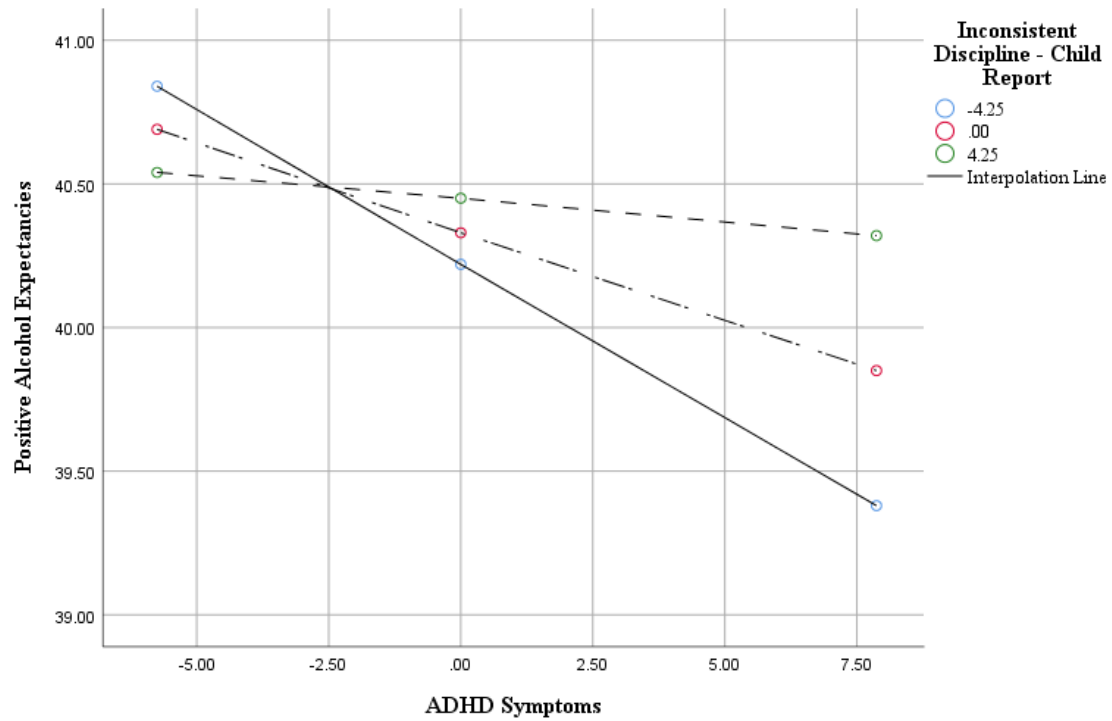


Figure 3.9. Child report of inconsistent discipline does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

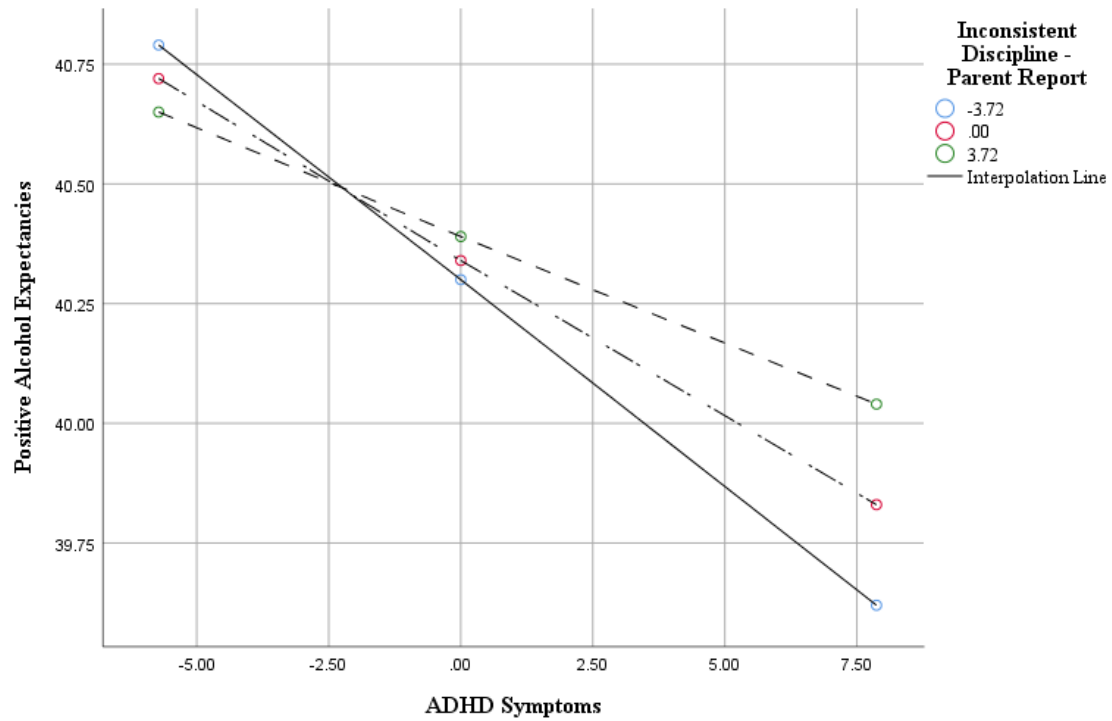


Figure 3.10. Parent report of inconsistent discipline does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

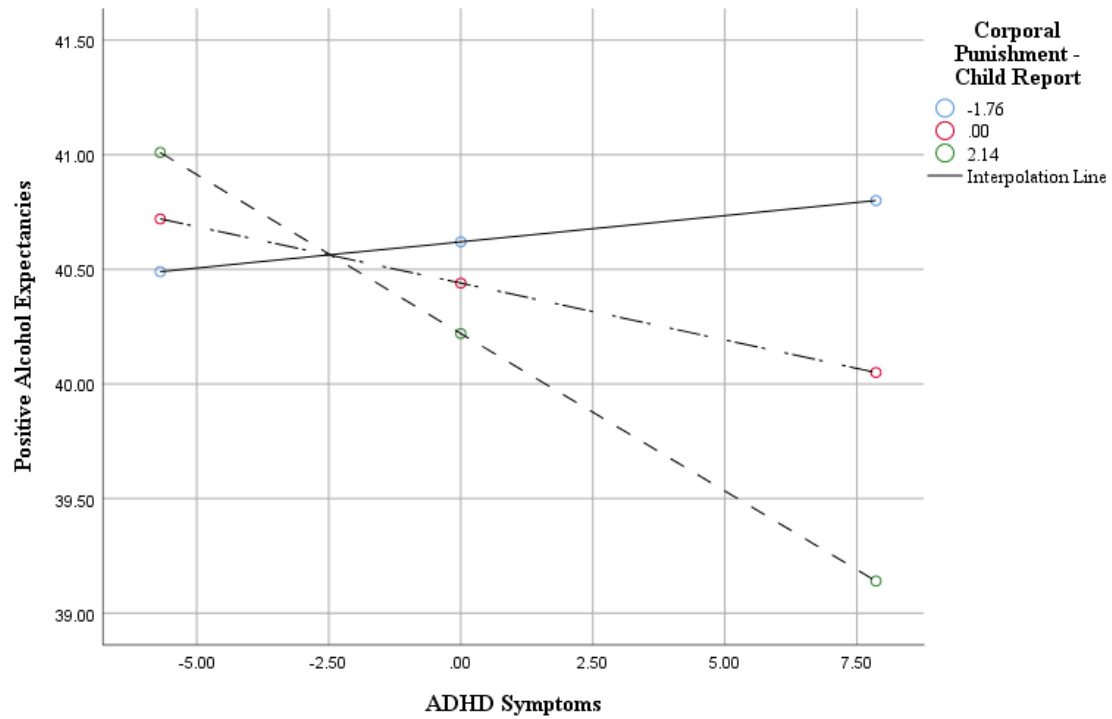


Figure 3.11. Child report of corporal punishment does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

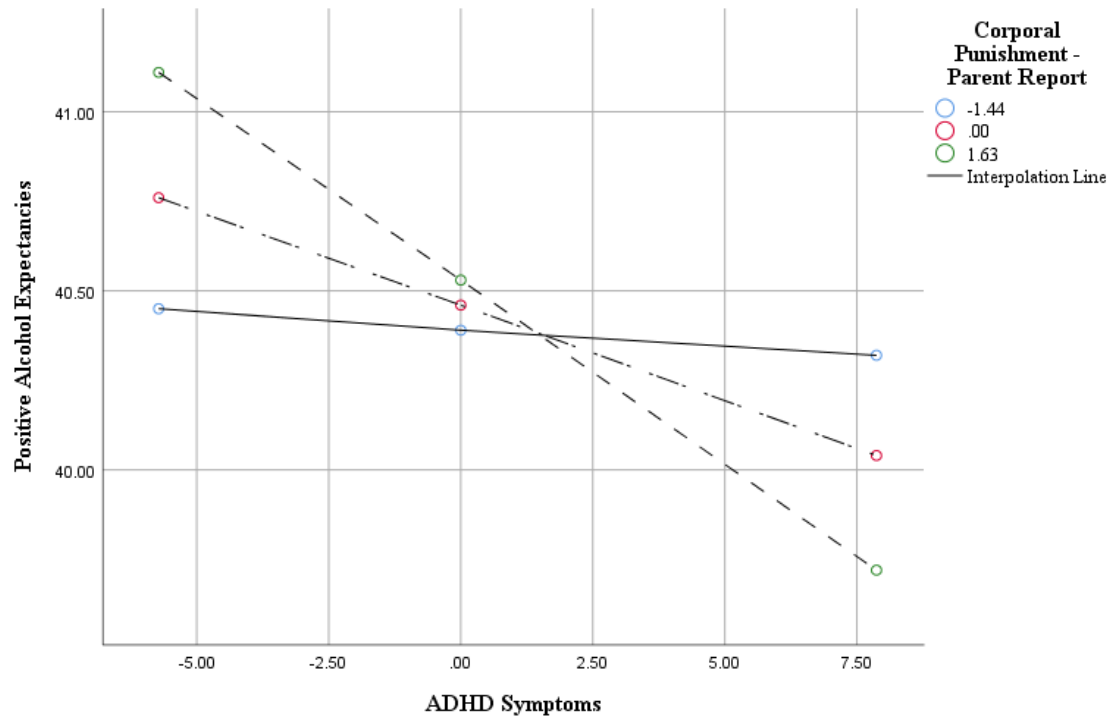


Figure 3.12. Parent report of corporal punishment does not moderate the relation between ADHD symptoms and positive alcohol expectancies. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low, medium, and high levels were not statistically significant, $p > 0.05$.

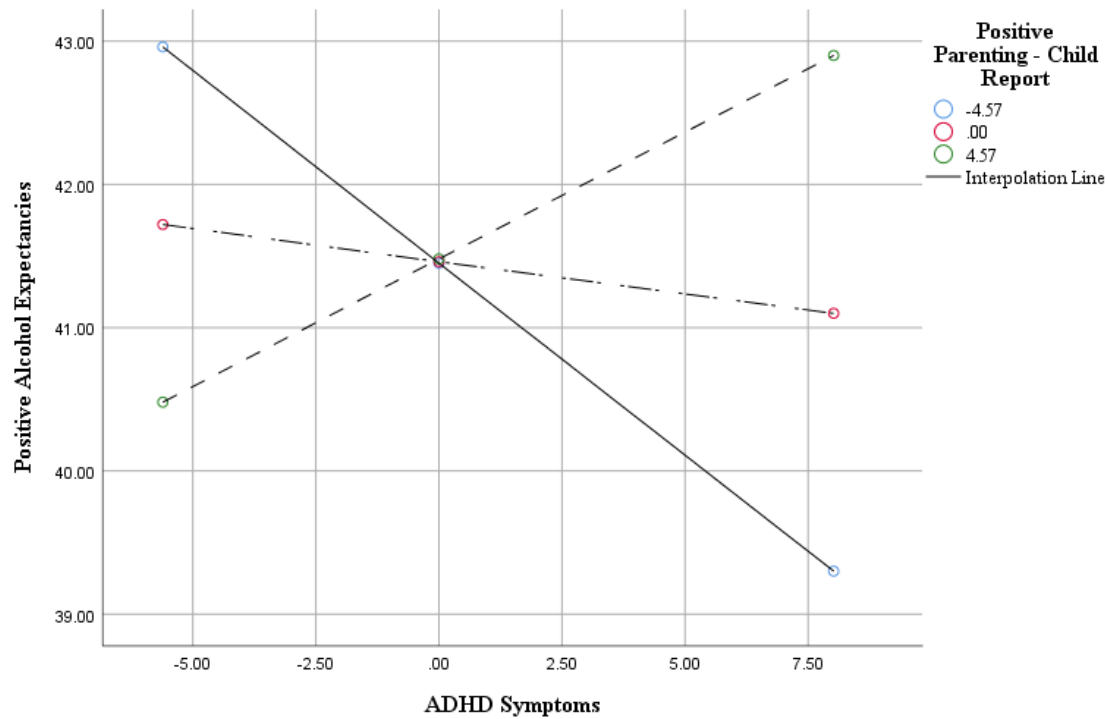


Figure 3.13. Child report of positive parenting moderates the relation between ADHD symptoms and positive alcohol expectancies among alcohol naïve participants. Blue circles represent one standard deviation below the mean, red circles represent the mean value, and green circles represent one standard deviation above the mean. The simple slopes at the low (one SD below the mean) level of positive parenting were statistically significant, $p < 0.05$. The simple slopes at the mean and high (one SD above the mean) levels of positive parenting were not statistically significant, $p > 0.05$

CHAPTER 4

DISCUSSION

Broad social factors including parent, peer, and school/environmental influences likely play a role in the relation between ADHD and alcohol expectancies. The present study sought to examine specific parenting and school climate factors as moderators of the relation between ADHD symptoms and positive alcohol expectancies. Research questions related to parenting variables included testing whether both child and parent report of positive parenting, poor parental monitoring, and parental involvement moderated the relation between ADHD symptoms and positive alcohol expectancies. The study also sought to assess whether both child and parent report of school climate moderated the relation between ADHD symptoms and positive alcohol expectancies. As no studies to date have examined the moderating roles of either parenting or school climate on the relation between ADHD and alcohol expectancies, the current study adds to existing literature in this area.

Results did not support any of the stated hypotheses. The first research question examined whether positive parenting moderated the relation between ADHD symptoms and positive alcohol expectancies, such that at higher levels of positive parenting, positive alcohol expectancies would decrease as ADHD symptoms increase. Child report of positive parenting did not moderate the relation between ADHD symptoms and positive alcohol expectancies. Although parent report of positive parenting did moderate

the relation between ADHD symptoms and positive alcohol expectancies, it was not in the expected direction. Findings revealed that, at low levels of parent-reported positive parenting there was an inverse relation between ADHD symptoms and positive alcohol expectancies. At high levels of parent-reported positive parenting, there was a positive relation between ADHD symptoms and positive alcohol expectancies.

Previous research has found that ADHD is related to positive alcohol expectancies (Dattilo et al., 2013; Nehlin et al., 2015) and positive parenting has been associated with decreased alcohol use (Bahr & Hoffman, 2010). And, alcohol expectancies are highly related to use (Armeli et al., 2000). As such, it is surprising that high levels of positive parenting were associated with increased ADHD symptoms and increased positive alcohol expectancies in the current study.

The second and third research questions, assessing both child and parent report of poor parental monitoring and parental involvement as respective moderators of the relation between ADHD symptoms and positive alcohol expectancies were not supported. Neither poor parental monitoring nor parental involvement moderated the relation between ADHD symptoms and positive alcohol expectancies. Parental monitoring has previously been found to predict lower levels of alcohol use among youth both with and without ADHD (Walther et al., 2012). And, parental involvement has been shown to be associated with delayed alcohol initiation and lower levels of subsequent alcohol consumption (Ryan et al., 2010).

Nonsignificant findings for the first three study hypotheses may be explained by results of preliminary analyses. In the current study, preliminary analyses revealed that ADHD symptoms were not related to positive alcohol expectancies in the expected

direction. Instead, findings revealed that ADHD symptoms and positive alcohol expectancies had a significant negative correlation. The existing research base on the relation between ADHD and alcohol expectancies is small but growing and does indicate some support for the relation between ADHD and positive alcohol expectancies. However, there are key differences between the samples in these previous studies and the sample in the current study. Dattilo et al. (2013) and Elmore et al. (2018) both assessed a young adult sample of undergraduate students in the Southeastern United States, while Nehlin et al. (2015) assessed young adults who were receiving outpatient services for ADHD at a European university. The current study assessed a community sample of children and adolescents from a rural area in the southeastern United States. It may be the case that the relation between ADHD symptoms and positive alcohol expectancies operates differently among children from rural areas.

Although this finding is surprising, interactional theory (Thornberry, 1987) offers another possible explanation. Interactional theory highlights the role of positive, prosocial influences as well as negative, antisocial influences in young people's attitudes and behaviors. It is important to remember that a number of social factors (e.g., Figure 1.1) influence the relation between ADHD and alcohol expectancies. It may be the case that additional, unmeasured factors are contributing to the effects of parenting on the relation between ADHD symptoms and positive alcohol expectancies. Given that the body of research on ADHD and alcohol expectancies is small, additional research is needed to better understand how additional social factors may impact this relation. Additionally, it is possible that parenting variables are more strongly related to alcohol use than alcohol expectancies. Although the relation between parenting factors and adolescent alcohol use

is well-documented in the literature (e.g., Bahr & Hoffman, 2010; Duncan, Duncan, Biglan, & Ary, 1998; Guilamo-Ramos, Jaccard, Rurrisi, & Johansson, 2005; Stice, Barrera, & Chassin, 1993), there is less research examining the relation between parenting factors and alcohol expectancies. Nearly all of the existing research on ADHD and alcohol expectancies has emerged over the last decade (e.g., Dattilo et al., 2013; Elmore et al., 2018; Nehlin et al., 2015; Pedersen et al., 2014; Squeglia et al., 2016), but the role of parenting may have a larger impact on alcohol use than expectancies.

The fourth research question examined whether school climate moderated the relation between ADHD symptoms and positive alcohol expectancies. Although both child-reported school climate and parent-reported school climate were found to moderate the relation between ADHD symptoms and positive alcohol expectancies, results do not support the stated hypothesis. Results instead indicated that, when child-reported school climate is low, there was a significant negative relation between ADHD symptoms and positive alcohol expectancies. Similarly, when parent-reported perception of school climate was low, there was a significant negative relation between ADHD symptoms and positive alcohol expectancies. The study hypothesis stated that, at high levels of school climate, there would be a negative relation between ADHD symptoms and positive alcohol expectancies. Previous research has indicated that individuals with ADHD have significant academic (e.g., Biederman et al., 1996) and social impairment (e.g., Hoza et al., 2004, Wheeler & Carson, 1994). As with the first three study hypotheses, it is important to note that preliminary findings found ADHD symptoms had a significant negative correlation with positive alcohol expectancies. As such, it is again important to consider differences in the current sample and past research that has established the link

between ADHD and positive alcohol expectancies. School climate has not been examined in the existing literature on ADHD and alcohol expectancies, and the impact of school climate among children from a rural Southeastern county may merit further study. It may also be the case that additional broad social factors play a role in the influence of school climate on the relation between ADHD symptoms and positive alcohol expectancies.

Additionally, exploratory analyses examined inconsistent discipline and corporal punishment as moderators of the relation between ADHD symptoms and positive alcohol expectancies. Results indicated that neither inconsistent discipline nor corporal punishment moderated the relation between ADHD symptoms and positive alcohol expectancies. It is surprising that inconsistent discipline did not moderate this relation, as research has documented a negative association between consistent discipline and substance use in adolescence (Stice et al., 1993; Stice & Barerra, 1995). And, although positive alcohol expectancies are distinct from alcohol use, the two are highly related (Armeli et al., 2000). As with the hypotheses one through three, it may be the case that parenting is more strongly related to alcohol use than expectancies. And, differences in the present sample of children and adolescents from a rural Southeastern county may also contribute to the lack of significant findings for exploratory analyses.

Implications

Study findings have several implications. First, findings lend support to the proposed conceptual model (Figure 1.1) of broad social factors that are thought to play a role in the relation between ADHD and alcohol expectancies/use. Given that multiple factors may explain the relation between ADHD and expectancies/use, having a sense of the broad factors that influence a child remains important for prevention and intervention.

However, given the current findings, it may be most useful for supportive adults to continue to focus on bolstering well-documented protective factors for alcohol use, such as the use of positive parenting strategies, peer relations, and school climate.

Additionally, the current study found that low levels of child and parent-reported school climate were associated with decreased positive alcohol expectancies and increased ADHD symptoms. Although low levels of school climate appeared to be a protective factor in relation between ADHD and alcohol expectancies in the current study, children's experiences are fundamental to their successful transition to adulthood. As such, it may be useful for teachers to monitor and parents to check in on students' perceptions of school.

Strengths

The current study has a number of strengths. Although findings were not in the expected directions and study hypotheses were not supported, the current study adds to the literature on ADHD and alcohol expectancies and provides directions for the continued research in this area. Although the study hypotheses were not supported, the findings provide additional understanding of the relation between ADHD symptoms and positive alcohol expectancies among children and adolescents. The study also has unique methodological strengths. First, study participants were recruited from a rural school district. Currently, there is a very small body of research examining the relation between ADHD and alcohol expectancies. Much of the existing research has focused on samples within larger metropolitan areas (e.g., Lee & Humphreys, 2014; Squeglia et al., 2016; Walther, Pedersen, Gnagy, Pelham, & Molina, 2019). Additionally, the study was also

unique in its assessment of both child and parent report of parenting and school climate, rather than report of only one of these informants.

Limitations

Although peer influence was conceptualized as one of several broad social factors influencing the relation between ADHD symptoms and positive alcohol expectancies, the current study did not examine peer influence as an explicit moderator of this relation. As such, a key factor that may play a role in the relation between ADHD symptoms and positive alcohol expectancies was not assessed.

The current study also used parent report on the CBCL to measure ADHD symptoms. Although the CBCL is a widely used measure of a number of behavioral and emotional concerns within childhood including ADHD (Achenbach & Rescorla, 2001; Ferdinand et al., 2004), it may be the case that using symptoms based on a total score failed to capture key differences between individuals with a more hyperactive/impulsive presentation and individuals with a predominately inattentive presentation. Previous research has suggested that hyperactivity-impulsivity, rather than inattention, may be a stronger contributing factor to the development of alcohol expectancies (Squeglia et al., 2016). And, impulsivity is a personality-level trait that has shown to be related to alcohol use problems (Caspi et al., 1996). As such, using a measure of ADHD that combines both hyperactive/impulsive symptoms and inattentive symptoms may not have captured potential key differences.

Another study limitation was missing data for the MMBEQ, particularly among elementary school students. Given that alcohol expectancies have been shown to emerge as early as preschool (Noll et al., 1990), it is important to assess these expectancies from

an early age. In the present study, participants were excluded alcohol expectancy assessment if they were unable to name two different types of alcohol. However, the MMBEQ was also the last assessment in the study protocol. Even though children were provided with a break and snack during every study session, it may have been the case that some children, particularly younger children or those with ADHD symptoms, may have had difficulty persist in completion of the final study measure. And, the current study did not record whether missing data on the MMBEQ was due to lack of knowledge of alcohol, fatigue, or another reason.

Future Directions

Given the relation between ADHD and alcohol use (Molina et al., 2007), it is important to continue to study factors that may influence the relation between ADHD and alcohol expectancies, a known predictor of use (Armeli et al, 2000). Future research should continue to assess the relation between ADHD and positive alcohol expectancies, as it may operate differently among different samples.

Additional research should also further examine the role of moderating factors including parenting, school climate, and peer influence to better understand how such factors may influence alcohol expectancies *and* use among children with ADHD symptoms. It may be particularly useful to examine hyperactive/impulsive and inattentive symptoms within ADHD separately in order to better understand how these symptoms and, more broadly, the diagnosis may related to alcohol expectancies. Additionally, the current study only examined positive alcohol expectancies. Previously research found that positive alcohol expectancies may be important in the initiation and maintenance of alcohol use, but negative alcohol expectancies may be more important in

the decision to avoid or delay alcohol use or to stop or moderate its use after initiation (Jones, Corbin, & Fromme, 2001; Lee, Greely, & Oei, 1999; Leigh, 1999; Walters, 1998). As such, exploring the role of other dimensions of alcohol expectancies including negative expectancies may be important in better understanding the relation between ADHD and later alcohol use, and may help to clarify factors that moderate this relation. Although current study hypotheses were not supported, continued research on peer influence as well as other broad social factors that impact the relation between ADHD and alcohol expectancies is crucial for prevention and intervention within this population.

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APPENDIX A

IRB APPROVAL LETTER FOR STAGE 1 OF STUDY



OFFICE OF RESEARCH COMPLIANCE
INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for CONTINUED EXPEDITED REVIEW

Kate Flory, PhD
College of Arts & Sciences
Department of Psychology
Barnwell
Columbia, SC 29208

Re: **Pro00048355** / Continuing Review Number: **CR00022508**

This is to certify that the following proposal entitled, “ ***Project to Learn about Youth-- Mental Health-- Replication (Stage 1)***,” was reviewed and approved by the University of South Carolina Institutional Review Board (USC IRB) for continuation by Expedited review on **8/22/2017 (category 7)**. Approval is for a one-year period from **8/22/2017 to 8/21/2018**. When applicable, approved consent/assent documents are located under the “Stamped ICF” tab on the Study Workspace in eIRB. IRB approval for the study will expire if continuing review approval is not granted before **8/21/2018**. The Principal Investigator must submit a Continuing Review and required attachments to request continuing approval or closure.

PRINCIPAL INVESTIGATORS ARE TO ADHERE TO THE FOLLOWING APPROVAL CONDITIONS

- The research must be conducted according to the proposal/protocol that was approved by the USC IRB
- Changes to the procedures, recruitment materials, or consent documents, must be approved by the USC IRB prior to implementation
- *If applicable*, each subject should receive a copy of the approved date stamped consent document
- It is the responsibility of the principal investigator to report promptly to the USC IRB the following:
 - Unanticipated problems and/or unexpected risks to subjects

- Adverse events effecting the rights or welfare of any human subject participating in the research study
- Research records, including signed consent documents, must be retained for at least (3) three years after the termination of the last IRB approval.
- No subjects may be involved in any research study procedure prior to the IRB approval date, or after the expiration date.
- At the time of study closure a Continuing Review form is to be used for the final report to the USC IRB.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board. If you have questions, contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

Sincerely,

A handwritten signature in blue ink, appearing to read "Lisa M. Johnson".

Lisa M. Johnson
IRB Assistant Director

APPENDIX B

IRB APPROVAL LETTER FOR STAGE 2 OF STUDY



OFFICE OF RESEARCH COMPLIANCE
INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for CONTINUED EXPEDITED REVIEW

Kate Flory, PhD
College of Arts & Sciences
Department of Psychology
Barnwell
Columbia, SC 29208

Re: **Pro00051361** / Continuing Review Number: **CR00023152**

Dear Dr. Flory:

This is to certify that the following proposal entitled “***Project to Learn about Youth-- Mental Health Replication (Stage 2)***” was reviewed and approved by the University of South Carolina Institutional Review Board (USC IRB) for continuation by Expedited review on **10/30/2017 (category 7)**. Approval is for a one-year period from **10/30/2017 to 10/29/2018**. When applicable, approved consent/assent documents are located under the “Stamped ICF” tab on the Study Workspace in eIRB. IRB approval for the study will expire if continuing review approval is not granted before **10/29/2018**. The Principal Investigator must submit a Continuing Review and required attachments to request continuing approval or closure.

PRINCIPAL INVESTIGATORS ARE TO ADHERE TO THE FOLLOWING APPROVAL CONDITIONS

- The research must be conducted according to the proposal/protocol that was approved by the USC IRB
- Changes to the procedures, recruitment materials, or consent documents, must be approved by the USC IRB prior to implementation
- *If applicable*, each subject should receive a copy of the approved date stamped consent document
- It is the responsibility of the principal investigator to report promptly to the USC IRB the following:

- Unanticipated problems and/or unexpected risks to subjects
- Adverse events effecting the rights or welfare of any human subject participating in the research study
- Research records, including signed consent documents, must be retained for at least (3) three years after the termination of the last IRB approval.
- No subjects may be involved in any research study procedure prior to the IRB approval date, or after the expiration date.
- At the time of study closure a Continuing Review form is to be used for the final report to the USC IRB.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board. If you have questions, contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

Sincerely,



Lisa M. Johnson
ORC Assistant Director
and IRB Manager

APPENDIX C

DEMOGRAPHICS QUESTIONNAIRE

This questionnaire concerns you and your child. We realize that this is a detailed questionnaire but please try to answer as many of the questions as possible. If there is not enough space to answer a question, please feel free to use the margins or the back of this sheet.

1. Child's date of birth: ____/____/____
2. Child's gender: ____ Male ____Female
3. Which group(s) describes your child? (select all that apply):
 - a. American Indian or Alaska Native
 - b. Black or African American
 - c. Native Hawaiian or Other Pacific Islander
 - d. Asian
 - e. Hispanic or Latino
 - f. White
 - g. Other (Please specify) _____
4. Your date of birth: ____/____/____
5. Your gender: ____ Male ____Female
6. Which group(s) describe you? (select all that apply):
 - a. American Indian or Alaska Native
 - b. Black or African American

- c. Native Hawaiian or Other Pacific Islander
- d. Asian
- e. Hispanic or Latino
- f. White
- g. Other (Please specify) _____

7. What is your relationship to the child?

- a. Biological parent
- b. Stepparent
- c. Adoptive parent
- d. Foster parent
- e. Other family relative (Please specify) _____
- f. Other (Please specify) _____

8. What language do you usually speak when you are at home or with your family?

- a. English
- b. Spanish
- c. Other (Please specify) _____

9. What is your child's primary language?

- a. English
- b. Spanish
- c. Other (Please specify) _____

10. What is your marital status?

- a. Single
- b. Married

- c. Living with a partner
- d. Separated
- e. Divorced
- f. Widowed

11. What is the highest level of education you have completed?

- a. Less than high school
- b. High school diploma or GED
- c. Some college (no degree)
- d. Associate's degree
- e. Bachelor's degree
- f. Master's degree
- g. Professional degree
- h. Doctoral degree

12. Currently employed? ____ Yes ____No Occupation:

If the child has a second primary caregiver (either someone living in partnership with you in the home or someone else who is sharing guardianship of the child with you), complete the information below:

13. Caregiver #2 date of birth: ____/____/____

14. Gender: ____ Male ____Female

15. What is this person's relationship to the child? (select all that apply):

- a. Biological parent
- b. Stepparent
- c. Adoptive parent
- d. Foster parent
- e. Other family relative (Please specify) _____
- f. Other (Please specify) _____

16. What is this person's marital status?
- | | |
|--------------------------|--------------|
| a. Single | d. Separated |
| b. Married | e. Divorced |
| c. Living with a partner | f. Widowed |
17. What is this person's highest level of education?
- | | |
|----------------------------------|------------------------|
| a. Less than high school | d. Associate's degree |
| b. High school diploma
or GED | e. Bachelor's degree |
| c. Some college (no
degree) | f. Master's degree |
| | g. Professional degree |
| | h. Doctoral degree |
18. Currently employed? ☐ Yes ☐ No Occupation:

19. Including this child, what is the total number of children (under the age of 18) in the household where he/she is currently living? _____
20. What is the annual income of this household? (Please select one)
- | | |
|----------------------|-----------------------|
| a. Less than \$5,000 | f. \$25,000-\$34,999 |
| b. \$5,000-\$9,999 | g. \$35,000-49,999 |
| c. \$10,000-\$14,999 | h. \$50,000-\$74,000 |
| d. \$15,000-\$19,999 | i. \$75,000-\$99,999 |
| e. \$20,000-\$24,999 | j. \$100,000 and over |
21. Does your child have any ongoing physical health problems that have been diagnosed by a health care worker (for example, asthma, diabetes, etc.)?
☐ Yes ☐ No

If yes, explain:

22. Is your child limited in any way in activities because of physical, mental, or emotional problems? ☐ Yes ☐ No

If yes, explain:

23. Does your child have any health problems that require him/her to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone? ☐ Yes ☐ No

If yes, explain:

24. How often does your child attend church or other religious meetings?
- | | |
|--------------------------|------------------------|
| a. More than once a week | d. A few times a year |
| b. Once a week | e. Once a year or less |
| c. A few times a month | f. Never |

25. How often does your child spend time in private religious activities, such as prayer, meditation, or Bible study?

- | | |
|-------------------------------|------------------------|
| a. More than once a day | d. Once a week |
| b. Daily | e. A few times a month |
| c. Two or more times per week | f. Rarely or never |

26. To what extent do you consider your child to be a religious person?
- a. Very religious
 - b. Moderately religious
 - c. Slightly religious
 - d. Not religious at all
27. To what extent do you consider your child to be a spiritual person?
- a. Very spiritual
 - b. Moderately spiritual
 - c. Slightly spiritual
 - d. Not spiritual at all
28. Does your child have any kind of health care coverage, including health insurance, prepaid plans such as HMO's, or government plans such as Medicaid?
- ___ Yes ___No
29. Is your child insured by Medicaid or the Children's Health Insurance Program, CHIP? (In South Carolina, the program is sometimes called Partners for Healthy Children.)
- ___ Yes ___No

APPENDIX D

ITEMS ON THE ATTENTION PROBLEMS SCALE OF THE CHILD BEHAVIOR CHECKLIST

Below is a list of items that describe children and youths. For each item that describes your child *now or within the past 6 months*, please circle **2** if the item is *very true or often true* of your child. Circle **1** if the item is *somewhat or sometimes true* of your child. If the item is *not true* of your child, circle the **0**. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = *Not True (as far as you know)*

1 = *Somewhat or Sometimes True*

2 = *Very True or Often True*

- 1. Acts too young for his/her age
- 4. Fails to finish things that he/she starts
- 8. Can't concentrate, can't pay attention for long
- 10. Can't sit still, restless, or hyperactive
- 13. Confused or seems to be in a fog
- 17. Daydreams or gets lost in his/her thoughts
- 41. Impulsive or acts without thinking
- 61. Poor school work
- 78. Inattentive or easily distracted
- 80. Stares blankly

APPENDIX E

MEMORY-MODEL BASED EXPECTANCY QUESTIONNAIRE

1. How often do people feel LESS NERVOUS when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

2. How often do people feel ACTIVE when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

3. How often do people feel COCKY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

4. How often do people feel CONTENT when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

5. How often are people DANGEROUS when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

6. How often do people feel DIZZY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

7. How often do people feel DUMB when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

8. How often do people feel FRIENDLY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

9. How often do people feel FUNNY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

10. How often do people feel HAPPY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

11. How often do people feel LOUD when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

12. How often do people feel MAD when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

13. How often do people feel NASTY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

14. How often do people feel PRETTY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

15. How often do people feel RELAXED when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

16. How often are people RUDE when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

17. How often do people feel SAD when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

18. How often do people feel SCARED when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

19. How often do people feel SLEEPY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

20. How often do people feel SLOW when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

21. How often do people feel SMART when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

22. How often do people feel TALKATIVE when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

23. How often do people feel WILD when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

24. How often do people feel CALM when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

25. How often do people feel FUN when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

26. How often do people feel JOLLY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

27. How often do people feel OUTGOING when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

28. How often do people feel QUIET when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

29. How often do people feel COOL when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

30. How often do people feel GOOFY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

31. How often do people feel LESS UPSET when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

32. How often do people feel MEAN when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

33. How often do people feel NICE when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

34. How often do people feel SICK when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

35. How often do people HURT OTHERS when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

36. How often do people feel FORGETFUL when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

37. How often do people feel CRAZY when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

38. How often do people feel GOOD when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

39. How often do people feel STUPID when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

40. How often do people feel CAREFREE when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

41. How often do people feel HYPER when they drink alcohol?

NEVER SOMETIMES USUALLY ALWAYS

APPENDIX F

ALABAMA PARENTING QUESTIONNAIRE – CHILD FORM

Instructions: The following are a number of statements about your family. Please rate each item as to how often it TYPICALLY occurs in your home. The possible answers are Never (1), Almost Never (2), Sometimes (3), Often (4), Always (5). If your dad or mom is not currently living at home with you, then skip the question that asks about that person.

1. You have a friendly talk with your mom.
 - a. How about your dad?
2. Your parents tell you that you are doing a good job.
3. Your parents threaten to punish you and then do not do it.
4. Your mom helps with some of your special activities (such as sports, boy/girl scouts, church youth groups).
 - a. How about your dad?
5. Your parents reward or give something extra to you for behaving well.
6. You fail to leave a note to let your parents know where you are going
7. You play games or do other fun things with your mom.
 - a. How about your dad?
8. You talk your parents out of punishing you after you have done something wrong.

9. Your mom asks you about your day in school.
 - a. How about your dad?
10. You stay out in the evening past the time you are supposed to be home.
11. Your mom helps you with your homework.
 - a. How about your dad?
12. Your parents give up trying to get you to obey them because it's too much trouble.
13. Your parents compliment you when you have done something well
14. Your mom asks you what your plans are for the coming day.
 - a. How about your dad?
15. Your mom drives you to a special activity.
 - a. How about your dad?
16. Your parents praise you for behaving well.
17. Your parents do not know the friends you are with.
18. Your parents hug or kiss you when you have done something well.
19. You go out without a set time to be home.
20. Your mom talks to you about your friends.
 - a. How about your dad?
21. You go out after dark without an adult with you.
22. Your parents let you out of a punishment early (like lift restrictions earlier than they originally said)
23. You help plan family activities.

24. Your parents get so busy that they forget where you are and what you are doing.

25. Your parents do not punish you when you have done something wrong.

26. Your mom goes to a meeting at school, like a PTA meeting or parent/teacher conference.

a. How about your dad?

27. Your parents tell you that they like it when you help out around the house.

28. You stay out later than you are supposed to and your parents don't know if.

29. Your parents leave the house and don't tell you where they are going.

30. You come home from school more than an hour past the time your parents expect you to be home.

31. The punishment your parents give depends on the mood.

32. You are at home without an adult being with you.

33. Your parents spank you with their hand when you have done something wrong.

34. Your parents ignore you when you are misbehaving.

35. Your parents slap you when you have done something wrong.

36. Your parents take away a privilege or money from you as punishment.

37. Your parents send you to your room as punishment.

38. Your parents hit you with a belt, switch, or other object when you have done something wrong.

39. Your parents yell or scream at you when you have done something wrong.

40. Your parents calmly explain why your behavior was wrong when you misbehave.

41. Your parents use time out (makes you sit or stand in a corner) as a punishment.

42. Your parents give you extra chores as punishment.

APPENDIX G

ALABAMA PARENTING QUESTIONNAIRE – PARENT FORM

Parent completing form: Mother Father Other:_____

Instructions: The following are a number of statements about your family. Please rate each item as to how often it TYPICALLY occurs in your home. The possible answers are Never (1), Almost Never (2), Sometimes (3), Often (4), Always (5). PLEASE ANSWER ALL ITEMS.

1. You have a friendly talk with your child
2. You let your child know when he/she is doing a good job with something.
3. You threaten to punish your child and then do not actually punish him/her.
4. You volunteer to help with special activities that your child is involved in (such as sports, boy/girl scouts, church youth groups).
5. You reward or give something extra to your child for obeying you or behaving well.
6. Your child fails to leave a note or to let you know where he/she is going.
7. You play games or do other fun things with your child.
8. Your child talks you out of being punished after he/she has done something wrong.
9. You ask your child about his/her day in school.

10. Your child stays out in the evening past the time he/she is supposed to be home.
11. You help your child with homework.
12. You give up trying to get your child to obey you because it's too much trouble.
13. You compliment your child when he/she has done something well.
14. You ask your child what his/her plans are for the coming day.
15. You drive your child to a special activity.
16. You praise your child for behaving well.
17. You do not know the friends your child is with.
18. You hug or kiss your child when he/she has done something well.
19. Your child goes out without a set time to be home.
20. You talk to your child about his/her friends.
21. Your child goes out after dark without an adult.
22. You let your child out of a punishment early (like lift restrictions earlier than you originally said).
23. Your child helps plan family activities.
24. You get so busy that you forget where your child is and what he/she is doing.
25. Your child is not punished when he/she has done something wrong.
26. You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school.

27. You tell your child that you like it when he/she helps out around the house.
28. You don't check that your child comes home at the time she/he was supposed to.
29. You don't tell your child where you are going.
30. Your child comes home from school more than an hour past the time you expect him/her.
31. The punishment you give your child depends on your mood
32. Your child is at home without adult supervision.
33. You spank your child when he/she has done something wrong.
34. You ignore your child when he/she is misbehaving.
35. You slap your child when he/she has done something wrong.
36. You take away privileges or money from your child as a punishment.
37. You send your child to his/her room as punishment.
38. You hit your child with a belt, switch, or other object when he/she has done something wrong.
39. You yell or scream at you child when he/she has done something wrong.
40. You calmly explain to your child why his/her behavior was wrong when he/she misbehaves.
41. You use time out (make him/her sit or stand in a corner) as a punishment.
42. You give your child extra chores as punishment.

APPENDIX H

PSYCHOLOGICAL SENSE OF SCHOOL MEMBERSHIP SCALE

For all questions, select the number that best describes how you feel.

- 1 – Not at all true
- 2 – A little true
- 3 – Somewhat true
- 4 – Mostly true
- 5 – Completely true

1. I feel like a real part of my school.
2. People notice when I'm good at something.
3. It is hard for people like me to be accepted here.
4. Other students in this school take my opinions seriously.
5. Most teachers at this school are interested in me.
6. Sometimes I don't feel as if I belong here.
7. There's at least one adult in this school I can talk to if I have a problem.
8. People at this school are friendly to me.
9. Teachers here are not interested in people like me.
10. I am included in lots of activities at this school.
11. I am treated with as much respect as other students.
12. I feel very different from most other students here.
13. I can really be myself at this school.
14. The teachers here respect me.

- 15. People here know I can do good work.
- 16. I wish I were in a different school.
- 17. I feel proud of belonging to my school.
- 18. Other students here like me the way I am.

APPENDIX I

PARENT PERCEPTIONS OF SCHOOL CLIMATE SCALE

Social Climate

1. To what extent do you think that children enjoy going to your child's school?
 - a. Not at all
 - b. A little bit
 - c. Somewhat
 - d. Quite a bit
 - e. A tremendous amount
2. Overall, how much respect do you think the children at your child's school have for the staff?
 - a. Almost no respect
 - b. A little bit of respect
 - c. Some respect
 - d. Quite a bit of respect
 - e. A tremendous amount of respect
3. Overall, how much respect do you think the teachers at your child's school have for the children?
 - a. Almost no respect
 - b. A little bit of respect

- c. Some respect
 - d. Quite a bit of respect
 - e. A tremendous amount of respect
4. How much does the school value the diversity of children's backgrounds?
- a. Not at all
 - b. A little bit
 - c. Some
 - d. Quite a bit
 - e. A tremendous amount

Academic Climate

5. How well do administrators at your child's school create a school environment that helps children learn?
- a. Not at all
 - b. Mildly well
 - c. Fairly well
 - d. Quite well
 - e. Extremely well
6. How motivating are the classroom lessons at your child's school?
- a. Not at all motivating
 - b. Slightly motivating
 - c. Somewhat motivating
 - d. Quite motivating
 - e. Extremely motivating

7. How fair or unfair is the school's system of evaluating children?
- a. Very unfair
 - b. Somewhat unfair
 - c. Slightly unfair
 - d. Neither fair nor unfair
 - e. Slightly fair
 - f. Somewhat fair
 - g. Very fair